# TC-FX310/FX311

# SERVICE MANUAL

*US Model*
*Canadian Model*
*AEP Model*
*UK Model*
*E Model*

**'Dolby'** and the double-D symbol are the trade marks of Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

## SPECIFICATIONS

| Tape Transport Mechanism | TCM-130V12 |
|---|---|

Recording system 4-track 2-channel stereo
Fast-forward and rewind time
Approx. 100 sec. (with C-60 cassette)
Bias frequency 105 kHz
Signal-to-noise ratio (NAB, at peak level)

| Cassette \ Dolby NR switches | OFF | B-TYPE ON | C-TYPE ON |
|---|---|---|---|
| TYPE IV (Sony METALLIC) | 58 dB | 65 dB | 71 dB |
| TYPE II (Sony UCX) | 56 dB | 63 dB | 69 dB |
| TYPE I (Sony BHF) | 54 dB | 61 dB | 67 dB |

Total harmonic distortion
1.0% (with Sony METALLIC cassettes)
Frequency response DOLBY NR OFF
• With TYPE IV cassette (Sony METALLIC)
20 - 17,000 Hz
30 - 16,000 Hz (±3 dB)
30 - 13,000 Hz (±3 dB, 0 VU recording)
30 - 16,000 Hz (DIN)
• With TYPE II cassette (Sony UCX)
20 - 17,000 Hz
30 - 15,000 Hz (±3 dB)
30 - 15,000 Hz (DIN)
• With TYPE I cassette (Sony BHF)
20 - 16,000 Hz
30 - 13,000 Hz (DIN)
Wow and flutter 0.05% WRMS (NAB)
±0.14% (DIN)
Inputs Microphone inputs (phone jacks)
Sensitivity 0.25 mV (−70 dB)
For a low-impedance microphone
Line inputs (phono jacks)
Sensitivity 77.5 mV (−20 dB)
Input impedance 50 k ohms
Outputs Line outputs (phono jacks)
Output level 0.44 V (−5 dB) at load impedance 50 k ohms
Load impedance over 10 k ohms
Headphone output
Output level −28 dB at a load impedance of 8 ohms

—Continued on page 2—

**ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!**

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

**SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

## STEREO CASSETTE DECK

SONY®

TC

**General**

| | |
|---|---|
| Power requirements | 120 V ac, 60 Hz ... (US, Canadian model)<br>220 V ac, 50/60 Hz (240 V ac adjustable by authorized Sony personal) ... (AEP, G·AEP model)<br>240 V ac, 50/60 Hz (220 V ac adjustable by authorized Sony personnel) ... (UK model)<br>110, 120, 220 or 240 V ac adjustable, 50/60 Hz ... (E model) |
| Power consumption | 13 watts |
| Dimensions | Approx. 430 x 105 x 275 mm (w/h/d)<br>(17 x 4 1/4 x 10 7/8 inches)<br>including projecting parts and controls |
| Weight | Approx. 4.2 kg (9 lb 5 oz) |

**0 dB = 0.775 V**

## FEATURES

**Dolby NR C-type noise reduction system**
In addition to the conventional B-type Dolby NR system, this cassette deck employs the newly-developed C-type Dolby NR system which reduces tape noise twice as effective as the B-type system. The C-type system also incorporates an anti-saturation network to improve the high-frequency dynamic range by 4 dB at 10 kHz.

**Full-logic "feather-touch" operation**
At the slightest touch, the "feather-touch" function buttons enable you to switch directly from one mode to another without going through the stop mode.

**Cue and review functions**
The cue and review functions help you to locate the desired point on the tape by winding the tape ahead in the fast-forward mode, or rewinding it, with a chattering sound from the recorded part.

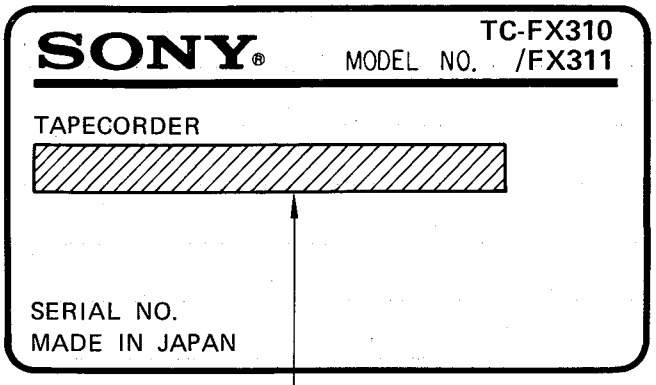
**Record muting function**
The record muting button enables you to automatically make a 4-second blank space between selections.

**Auto play**
The auto play function makes automatic replay possible promptly after the tape is rewound to the beginning.

**Remote control operation (for the TC-FX310 only)**
Using the optional RM-50 or RM-80 remote control unit, various operations—recording, playback, record muting operation, etc.—can be remotely controlled.
When the RM-65 synchro remote control unit is used to connect this cassette deck with a turntable equipped with a synchro remote control jack, the operation of the cassette deck and the turntable will be synchronized.

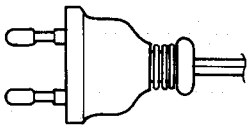
## MODEL INDENTIFICATION

*– Specification Label –*

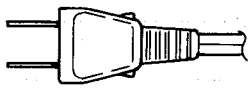



**– Power Cord –**

**E3 model: euro-plug 1-555-734-00**



**E2 model: parallel-blade plug 1-551-472-23**



US, Canadian model: AC: 120 V 60 Hz 12W
AEP, G·AEP model: AC: 220 V 50/60 Hz 13W
UK model: AC: 240 V 50/60 Hz 13W
E model: AC: 110, 120, 220, 240 V 50/60 Hz 13W

## SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

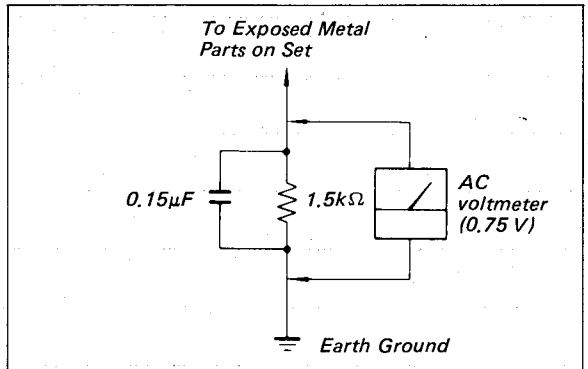



*Fig. A. Using an AC voltmeter to check AC leakage.*

## FUNCTION AND LOCATION OF CONTROLS

Each number in the text on page 5 is keyed to that of the photo and illustration.

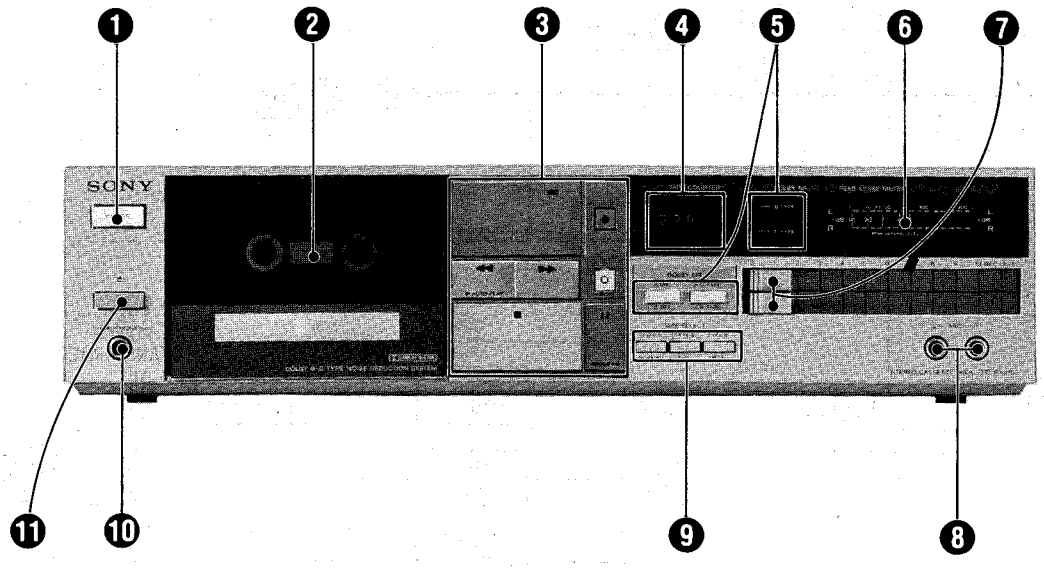
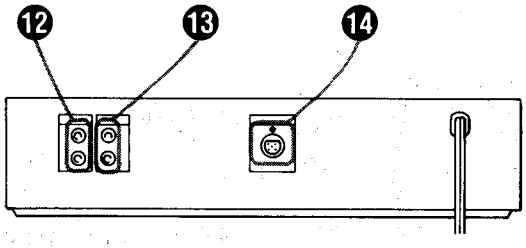



Photo: TC-FX310



**Front panel**

**❶ POWER switch**
This turns the power on or off.

**❷ Cassette holder**

**❸ Function buttons**
It is possible to switch directly from one mode to another.

▷ (forward) button : Press this button to play the tape back. To record, press this button while holding the ● button down.
◀◀ (rewind) button : Press this button to rewind the tape.
▶▶ (fast-forward) button : Press this button to advance the tape rapidly.
■ (stop) button : To stop the tape, press this button.
● (record) button : Press this button together with the ▷ button to start recording.
○ (record muting) button : Press this button to eliminate unwanted material and to insert a blank space during recording.
❚❚ (pause) button : To stop the tape running for a moment during recording or playback, press this button. This button is also used to control the start of recording more precisely, to release the record muting mode and for the cue and review functions.

**❹ TAPE COUNTER and RESET button**
The tape counter provides a numerical reference point while recording which can be used to index a recorded cassette. To reset to zero, press the RESET button.

**❺ DOLBY NR switches and indicators**
To record or play back using the Dolby NR system, depress the left ON/OFF switch (⎍ ON), then select either the B-type or C-type Dolby NR system with the right switch. Depress the switch for the C-type system (⎍ C-TYPE), or press to release it for the B-type system (⎍ B-TYPE). The corresponding indicator lights up.
To record or play back without the Dolby NR process, press to release the ON/OFF switch (⎍ OFF).

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**❻ LED PEAK LEVEL METERs**
These meters show the peak input level of each channel during recording, and recorded levels in the playback mode. They follow the transient peaks of high-level inputs that are too brief to be followed by conventional VU meters so that the optimum recording level can be accurately set.

**❼ REC LEVEL (recording level) controls**
These controls adjust the recording level.

**❽ MIC jacks** (phone jack)
Any low-impedance microphone equipped with a phone plug may be used.

**❾ TAPE SELECT buttons**
Depress one of the TAPE SELECT buttons, depending on which type of tape you use. The optimum bias current adjustment for recording and the optimum equalization adjustment for both recording and playback are set.

**❿ HEADPHONES jack** (stereo phone jack)
Connect a pair of headphones either to monitor the input signals to be recorded or to listen to a recording in the playback mode.

**⓫ ⏏ (eject) button**
Press this button to open the cassette holder.

**Rear panel**

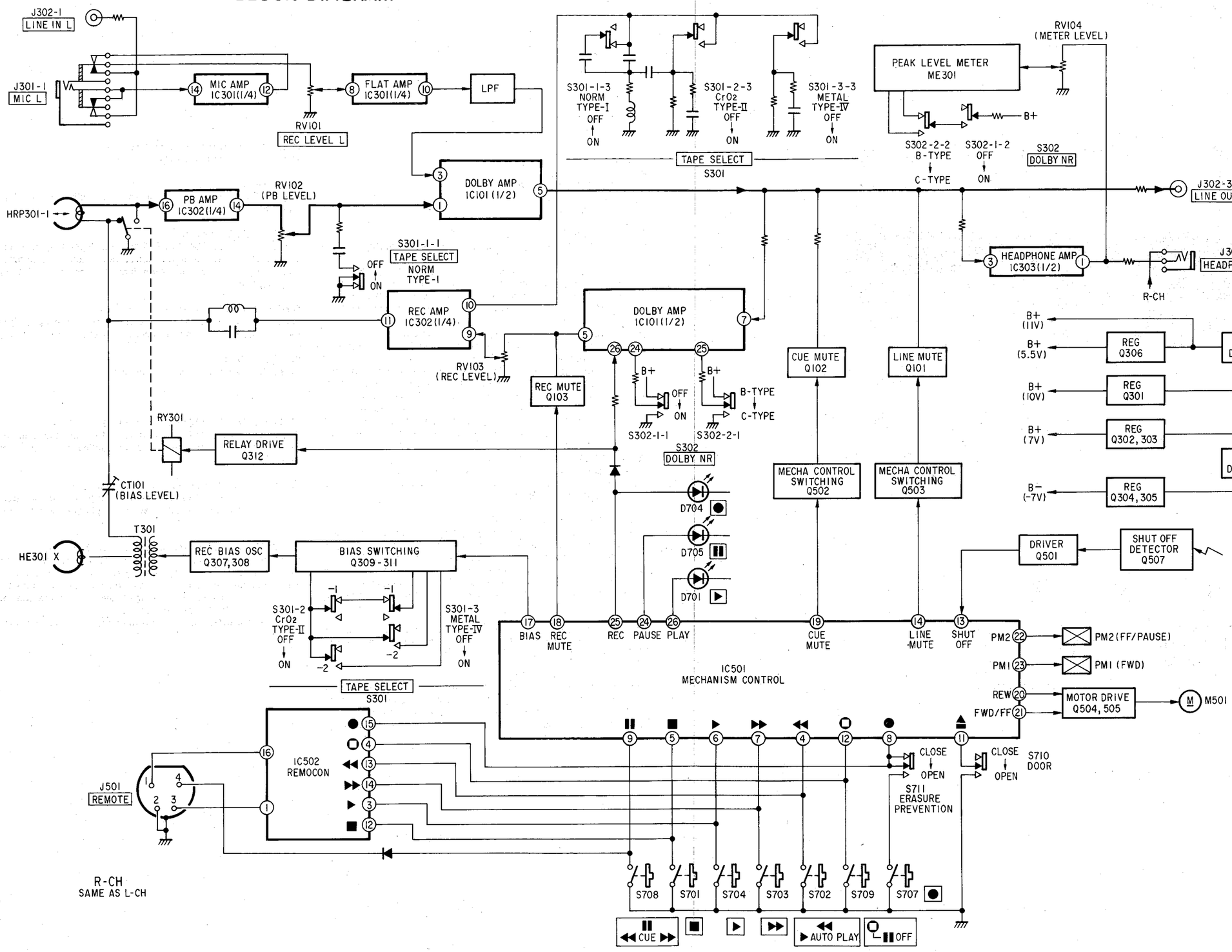
**⓬ LINE IN (line input) jacks** (phono jack)
Accepts tape outputs from an amplifier for tape recording and line outputs from another tape deck when duplicating a tape from that unit.

**⓭ LINE OUT (line output) jacks** (phono jack)
Accepts tape inputs from an amplifier for playing back a tape and line inputs from another tape deck for duplicating a tape onto that unit.

**⓮ REMOTE control connector** (for the TC-FX310 only)
Connect the optional RM-50 (wired) or RM-80 (wireless) remote control unit to operate the tape transport functions from a distance. The tape deck function buttons are still operative when the remote control unit is connected. The RM-65 synchro remote control unit can be connected to this connector.
Read the instruction manual of your remote control unit before operating.

TC-FX310/FX311

# SECTION 1
# BLOCK DIAGRAM



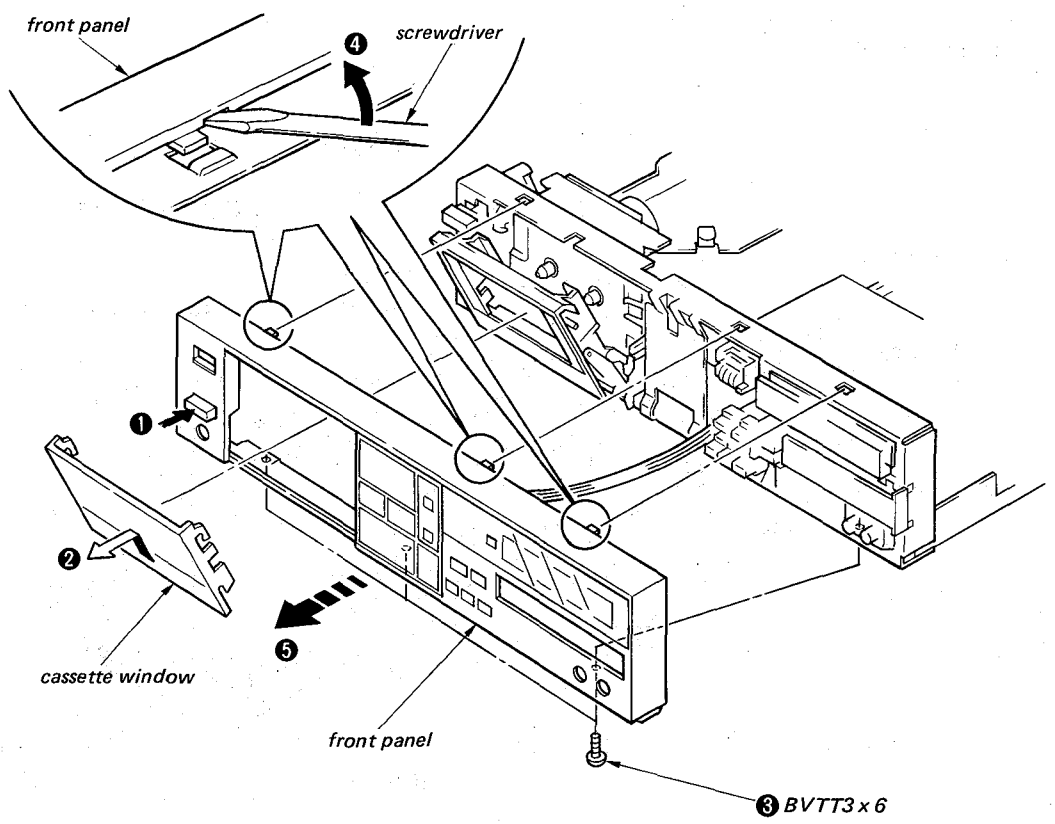
# SECTION 2
# DISASSEMBLY

- Follow the disassembly procedure in the numerical order given.

**REMOVE THE TOP COVER AND THE BOTTOM PLATE.**

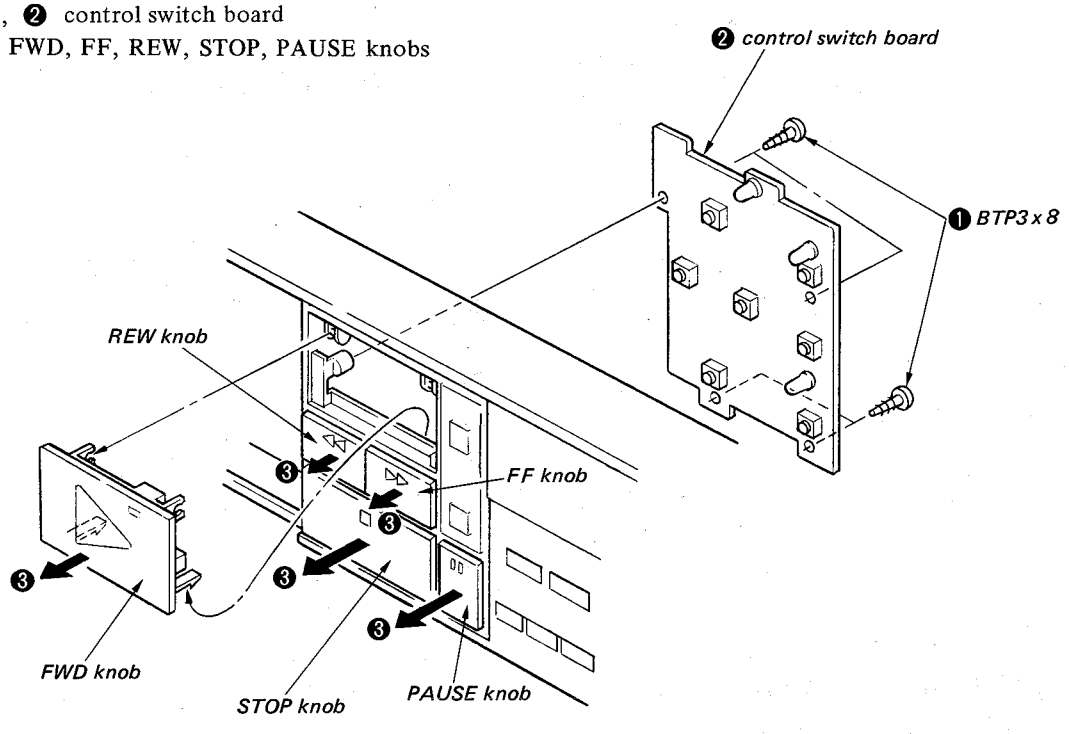
**CASSETTE WINDOW/FRONT PANEL**

❶ , ❷ cassette window
❶ – ❺ front panel

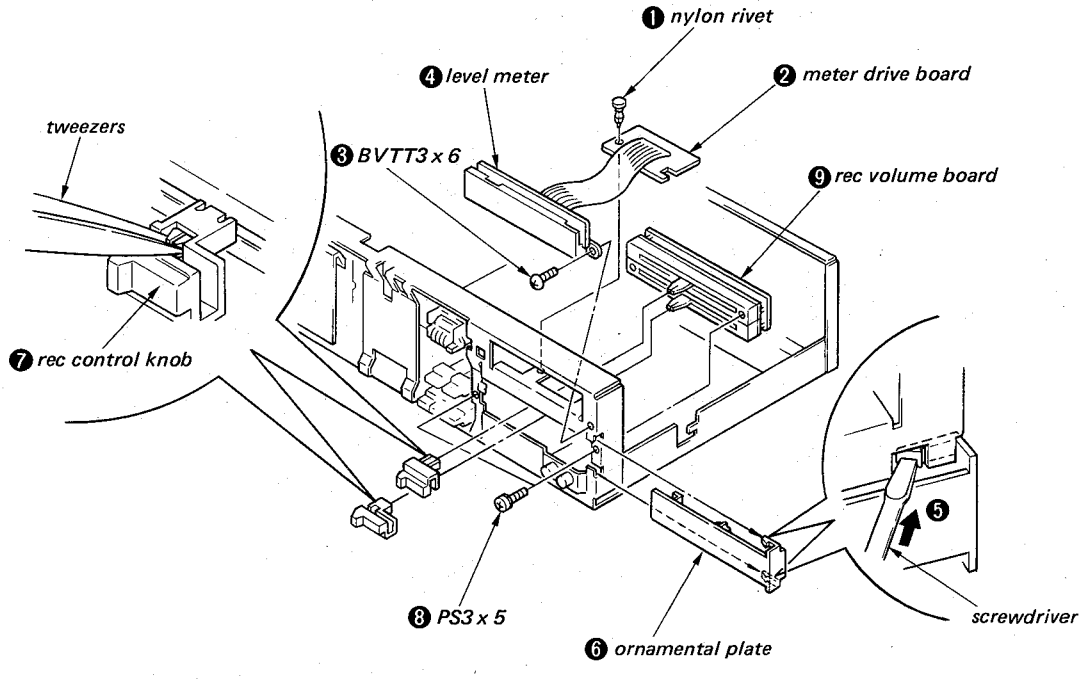


## CONTROL SW/FWD, FF, REW, STOP, PAUSE KNOBS

❶ , ❷ control switch board
❸ FWD, FF, REW, STOP, PAUSE knobs

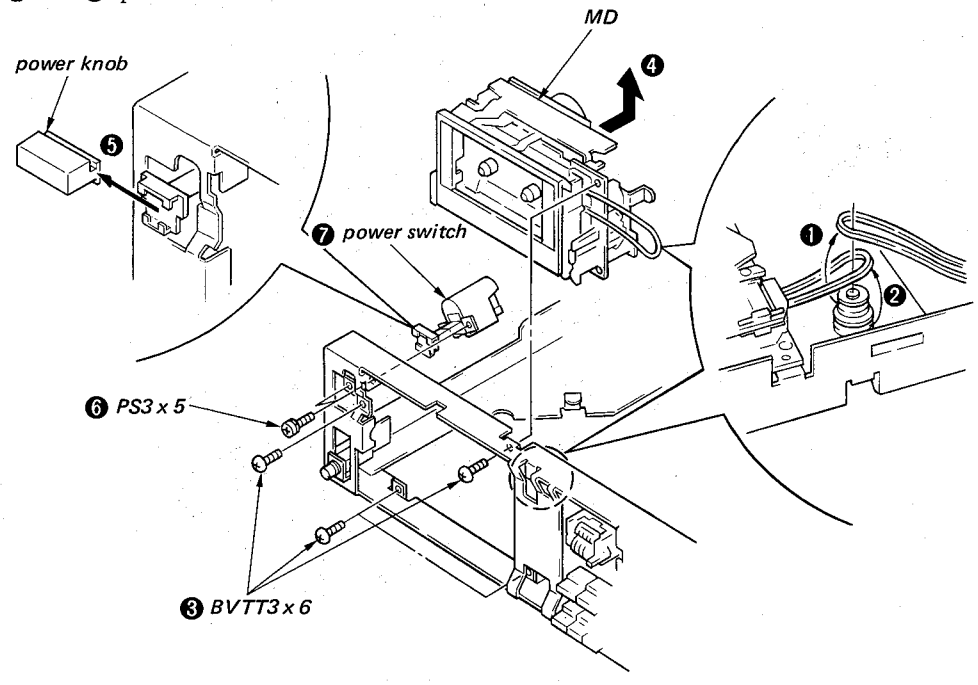



## REC VOLUME BOARD

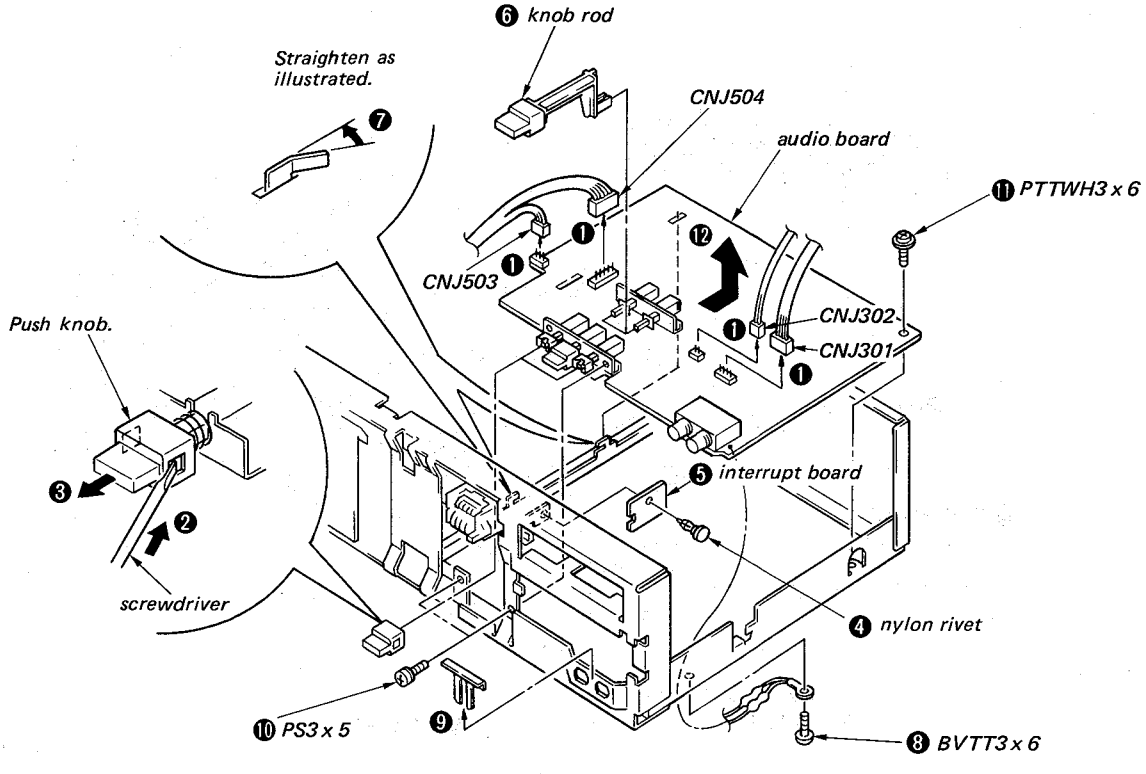


## MD/POWER SWITCH

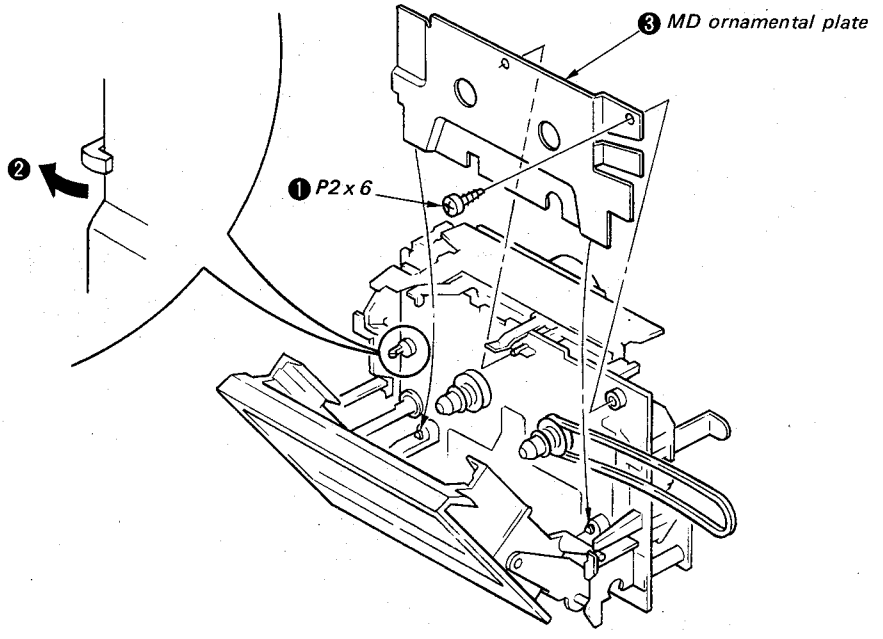
❶ – ❹ MD
❺ – ❼ power switch



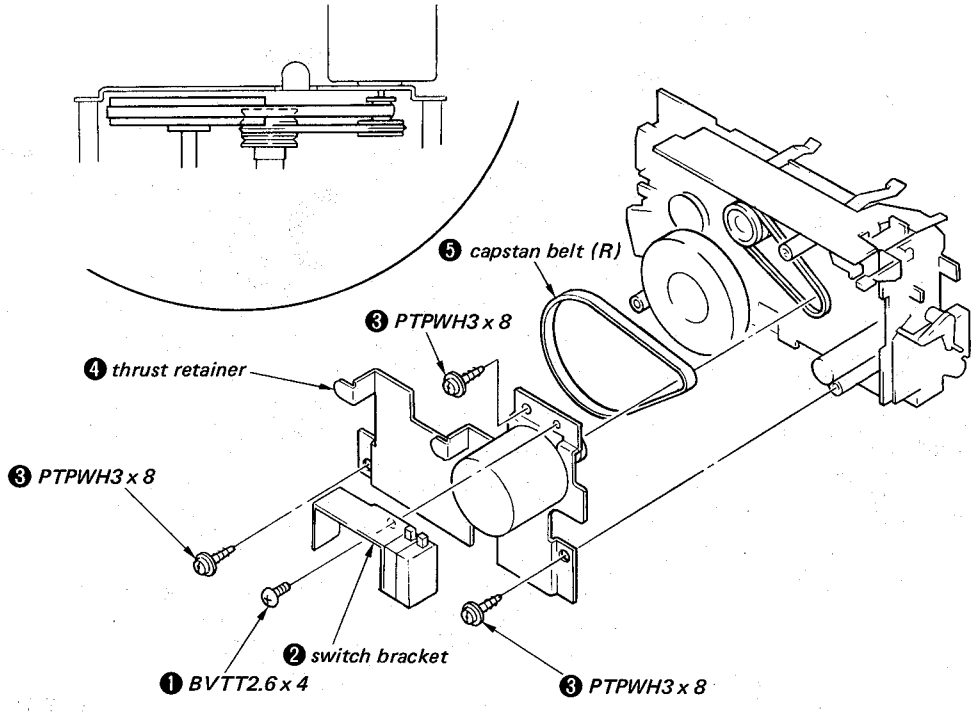

## AUDIO BOARD


❻ knob rod
Straighten as illustrated.
❼
CNJ504
audio board
⓫ PTTWH3 x 6
❶
❶
❶

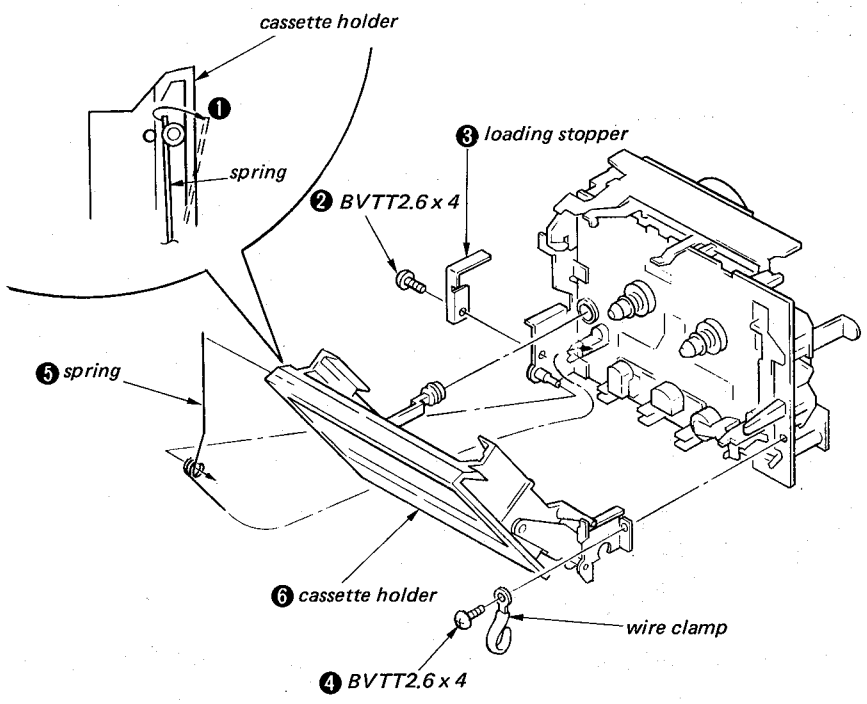
## MD ORNAMENTAL PLATE




## CAPSTAN BELT (R)

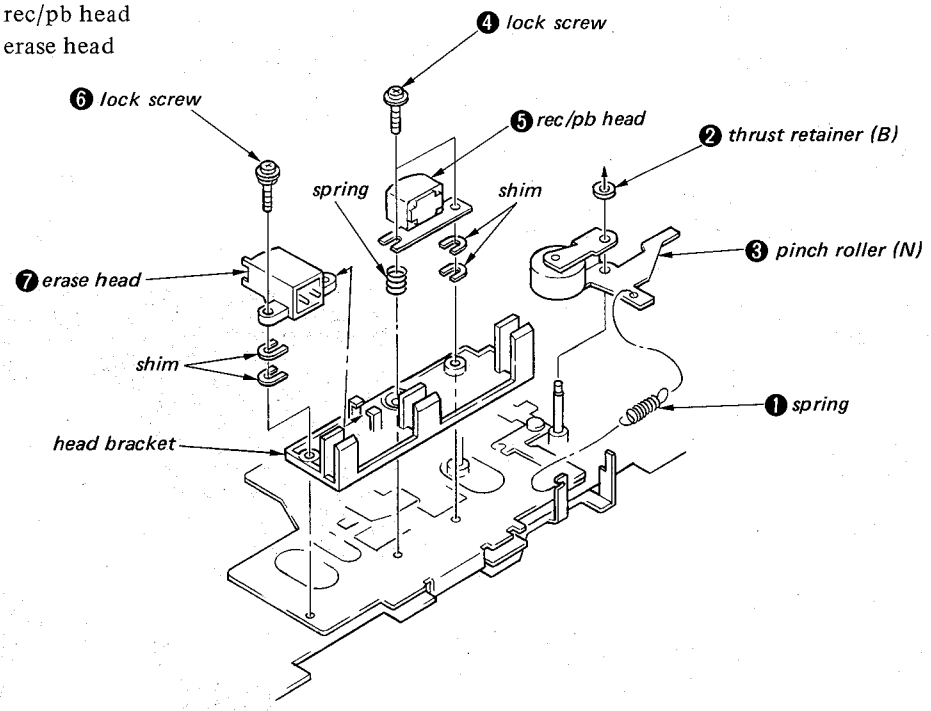


## CASSETTE HOLDER




## PINCH ROLLER (N)/HEAD

❶ – ❸ pinch roller (N)
❹, ❺ rec/pb head
❻, ❼ erase head



# SECTION 3
# ADJUSTMENTS

## 3-1. MECHANICAL ADJUSTMENTS

**PRECAUTION**

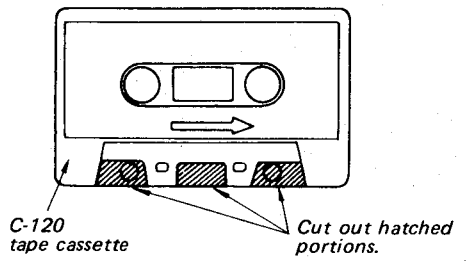
1. Clean the following parts with a denatured-alcohol-moistened swab:

   | | |
   |---|---|
   | record/playback head | pinch roller |
   | erase head | rubber belts |
   | capstan | idlers |

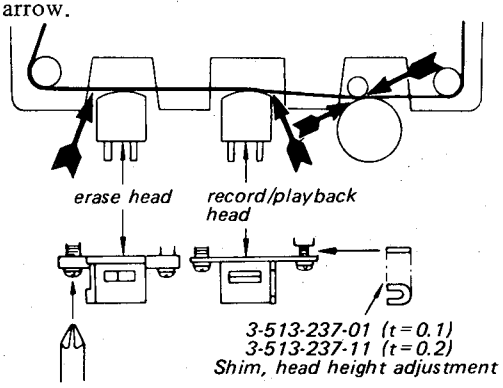
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

### Head Height Adjustment

1. Prepare an adjustment cassette as shown below.




2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at the portions shown by the arrow.



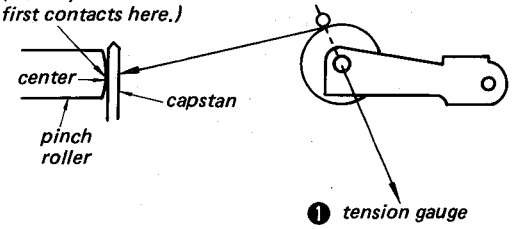

### Torque Measurement

| Torque | Torque meter | Meter reading |
|---|---|---|
| Forward | CQ-102C | 28 – 60 g•cm (0.39 – 0.83 oz•inch) |
| Back Tension | CQ-102C | 2.5 – 6 g•cm (0.03 – 0.08 oz•inch) |
| Fast Forward and Rewind | CQ-201B | 80 – 165 g•cm (1.1 – 2.28 oz•inch) |

### Pinch Roller Pressure Measurement

**– Playback Mode –**

❷ *Slowly return the pinch roller and read the spring scale just when the pinch roller starts rotating. (The capstan should first contacts here.)*



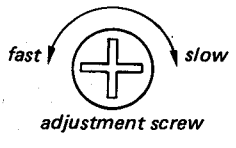

*200 ~ 300 g•cm*
*(2.77 ~ 4.16 oz•inch)*

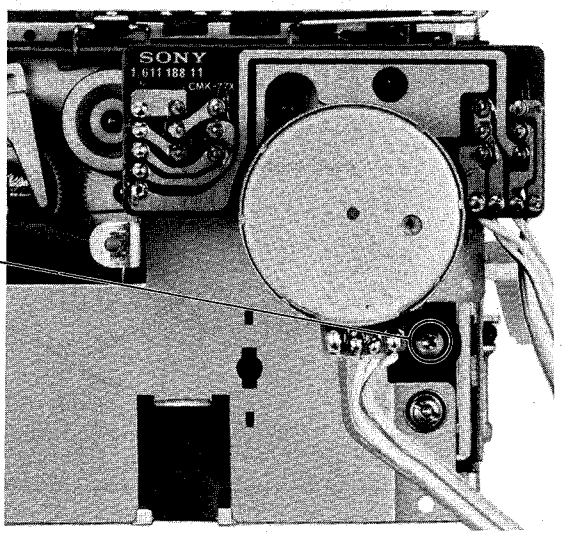
### Soft Eject Adjustment

**Specification**

| Eject time |
|---|
| 0.4 – 1.5 sec. |

Set the tape (C-90) and adjust the adjustment screw so that the specified EJECT TIME is obtained.



## 3-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

- Set the TAPE switches according to the tape as follows.

| Tape | TAPE SELECT switch |
|---|---|
| CS-15 | TYPE I : NORM |
| CS-26 | TYPE II : $CrO_2$ |
| CS-42 | TYPE IV: METAL |

- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch: OFF
TAPE switch: TYPE I: NORM

- Standard Record:

Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Standard Input Level

| | MIC | LINE IN |
|---|---|---|
| source impedance | 300Ω | 10 kΩ |
| input level | 0.77 mV (-60 dB) | 0.25 V (-10 dB) |

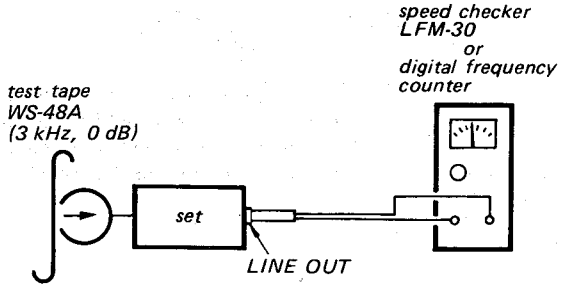
Standard Output Level

| | HEADPHONES | LINE OUT |
|---|---|---|
| load impedance | 8Ω | 47 kΩ |
| output level | 31 mV (-28 dB) | 0.435 V (-5 dB) |

**Capstan motor Speed Adjustment**

**Procedure:**

Mode: playback

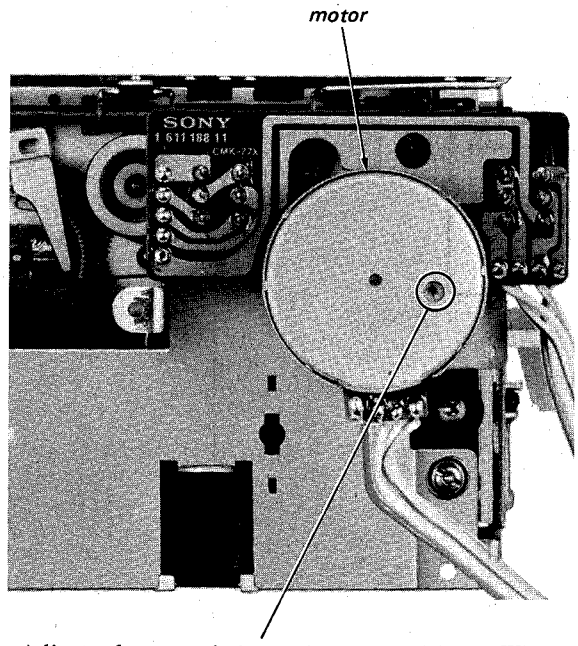



**Specification:**

| Speed checker | Digital frequency counter |
|---|---|
| -0.5 – +0.5% | 2,970 – 3,000 Hz |

Frequency difference between the beginning and the end of the tape should be within 0.8% (25 Hz).

**Adjustment Location:**

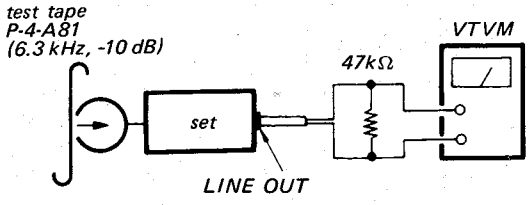



Adjust the speed by using screwdriver. When turning the screw clockwise, speed is faster.

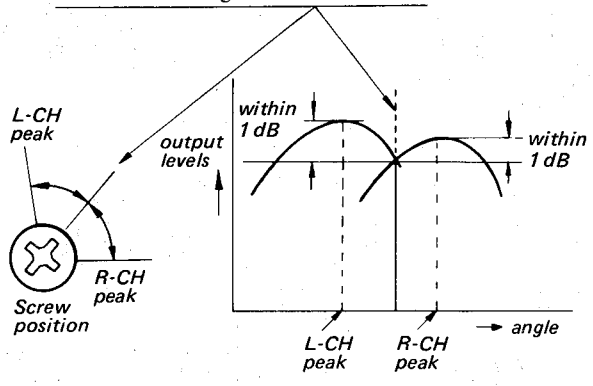
## Record/playback Head Azimuth Adjustment

**Procedure:**

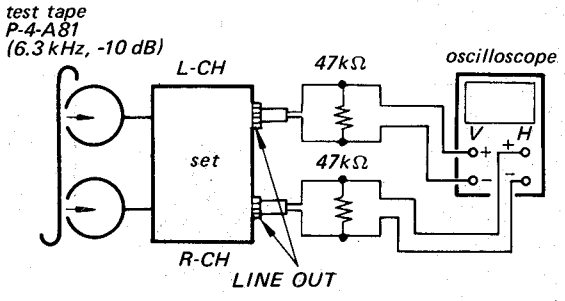
1. Mode: Playback

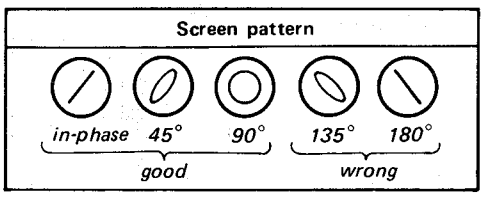



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.

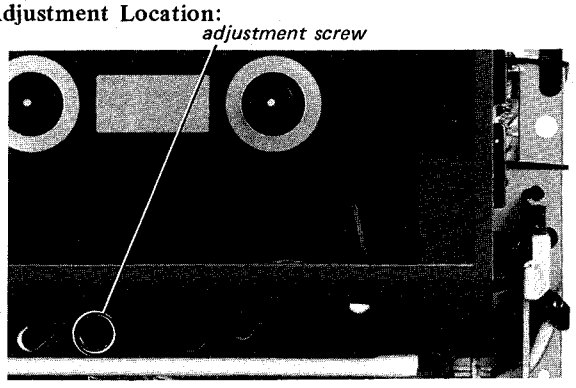



3. Phase Check
   Mode: playback



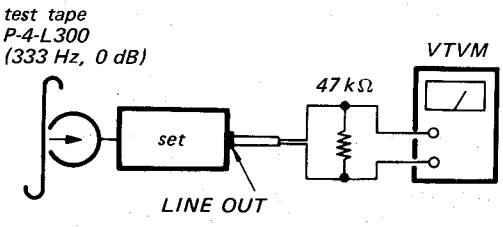

**Adjustment Location:**




## Playback Level Adjustment

**Procedure:**

Mode: playback




**Specification:**

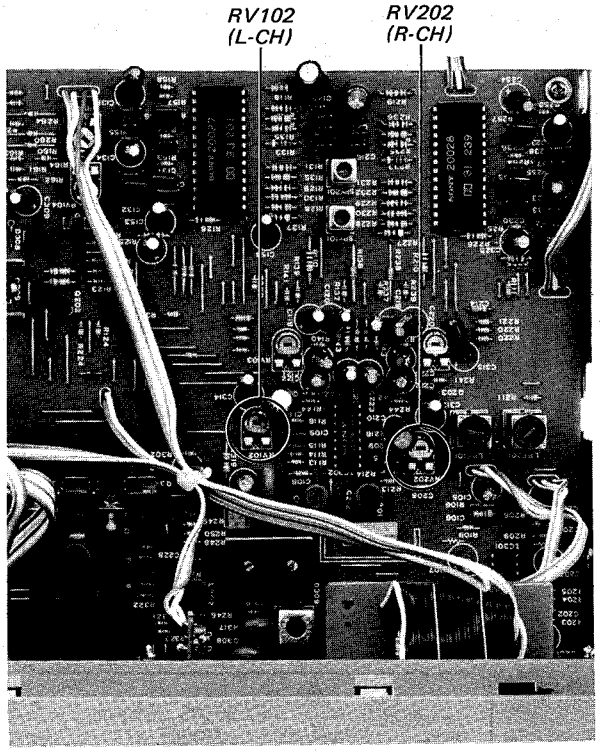
LINE OUT level: 0.45 – 0.50 V
(-4.9 – -3.9 dB)

Level difference between channels:
less than 0.5 dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

**Adjustment Location:**

*– AUDIO board –*



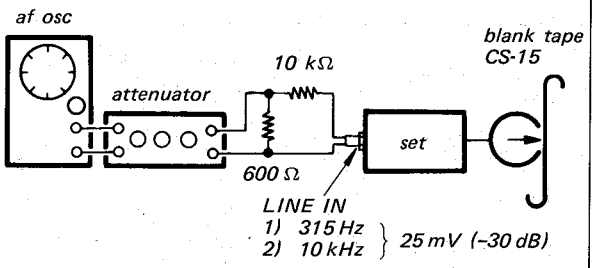
## Record Bias Adjustment

**Setting:**

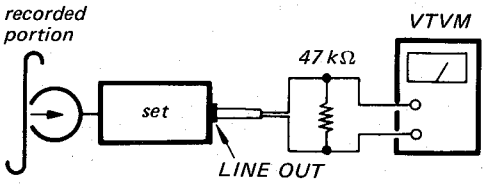
REC LEVEL control: standard record
(See page 15)

**Procedure:**

1. Mode: record



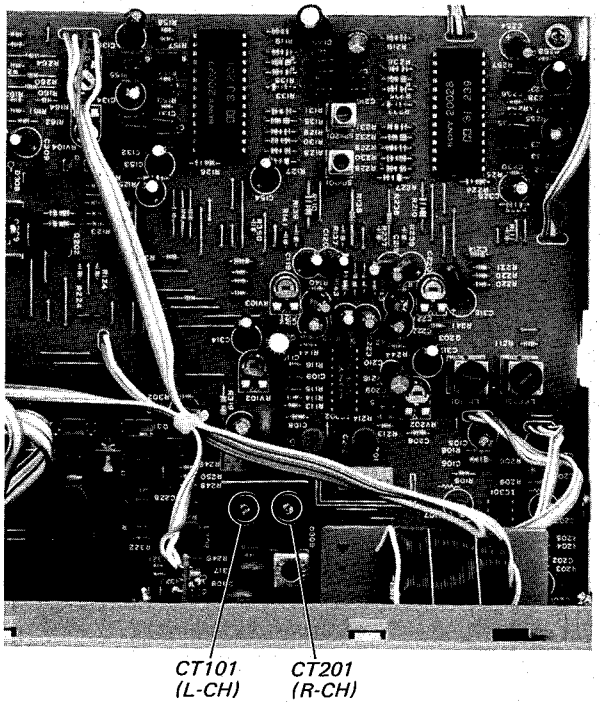

2. Mode: playback




Adjust CT101, CT201 so that the LINE OUT level of 10 kHz signal is 0 dB ±0.5 dB relative to that of 315 Hz.

**Adjustment Location:**

*– AUDIO board –*



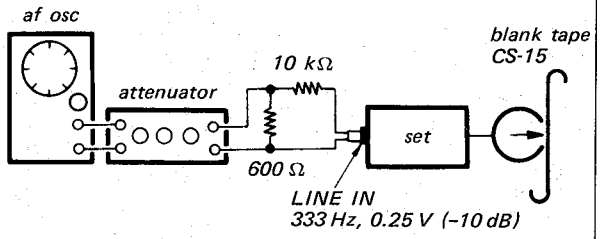

## Record Level Adjustment

**Setting:**

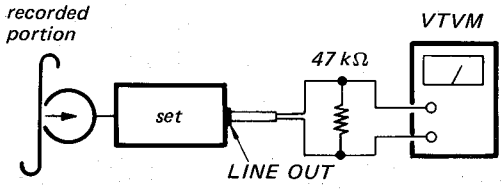
REC LEVEL control: standard record
(See page 15)

**Procedure:**

1. Mode: record




2. Mode: playback

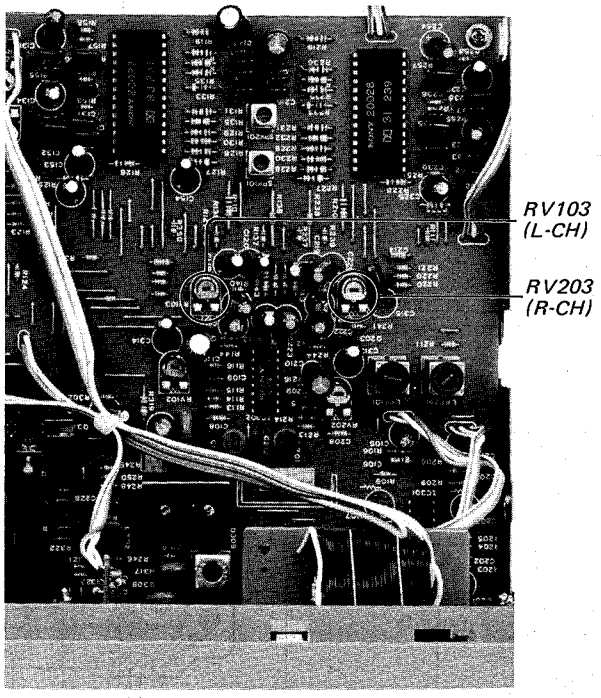



**Specification:**

LINE OUT level: 0.39 – 0.49 V
(-6 – -4 dB)

**Adjustment Location:**

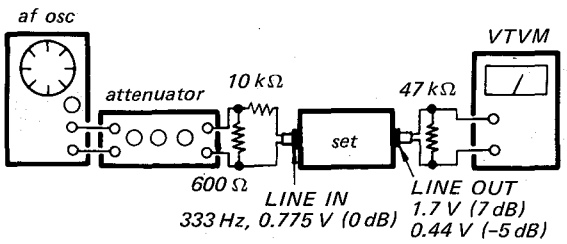
*– AUDIO board –*



**Level Meter Calibration**

**Procedure:**

1. Mode: record

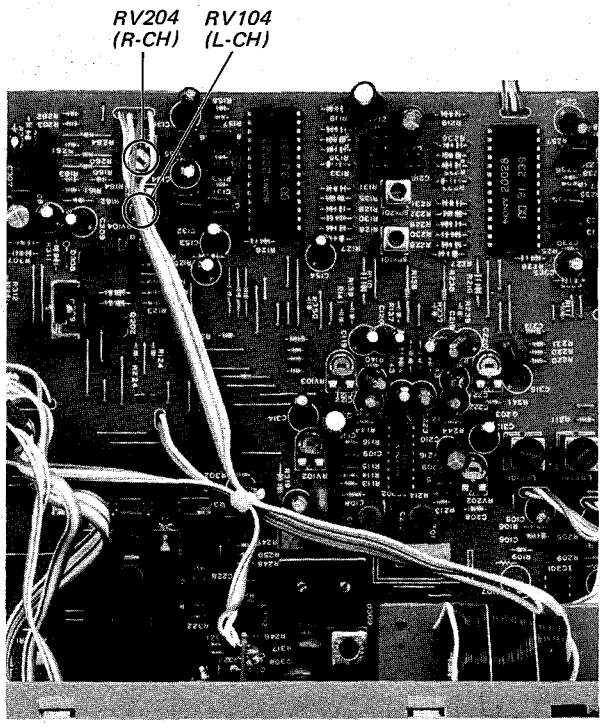



2. Set the REC LEVEL control so that the LINE OUT level is 0.44 V (-5 dB).
3. Adjust RV104 and RV204 so that the 4th segment from the left of the LED meter goes on.
4. Set the REC LEVEL control so that the LINE OUT level is 1.9 V (8 dB). Make sure that all the segments go on.

**Note:** Slide the REC LEVEL control rightward slowly.

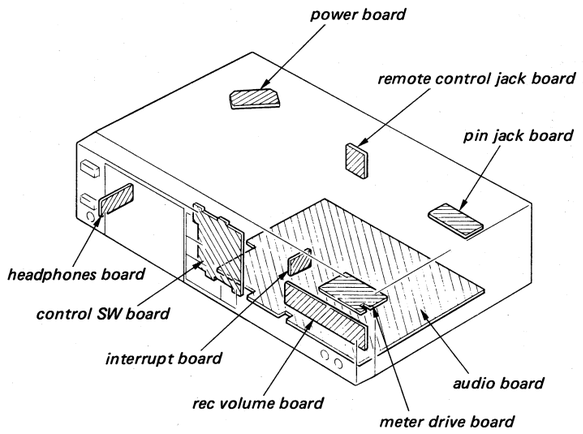
**Adjustment Location:**

*– METER DRIVE board –*



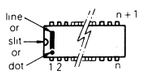
# SECTION 4
# DIAGRAMS

## Circuit Boards Location

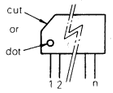



## ● Semiconductor Lead Layouts

**CX10032A**
**CX10033A**
**CX10034**
**CX20027**
**CX20028**
**TC9310N-040**

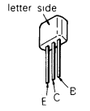



**M5218L**



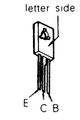

**2SC1364**
**2SC2001**

**2SA1175**
**2SC2785**



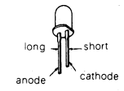

**2SC2458**
**DTA114ES**
**DTC114ES**

**2SB731**
**2SD414**
**2SD809**

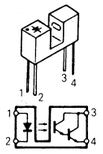



**10E-2**
**1SS202-1**
**HZ6B1L**
**HZ11B2L**
**RD5.6E-N3**

**AA5535S**
**BG5535S**
**PR5535S**

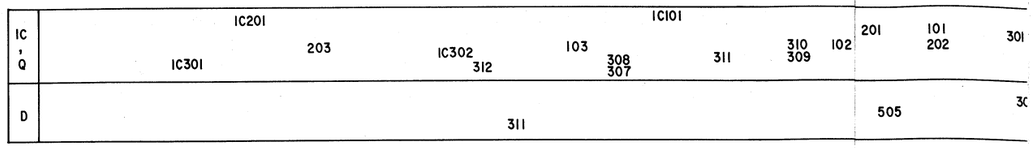


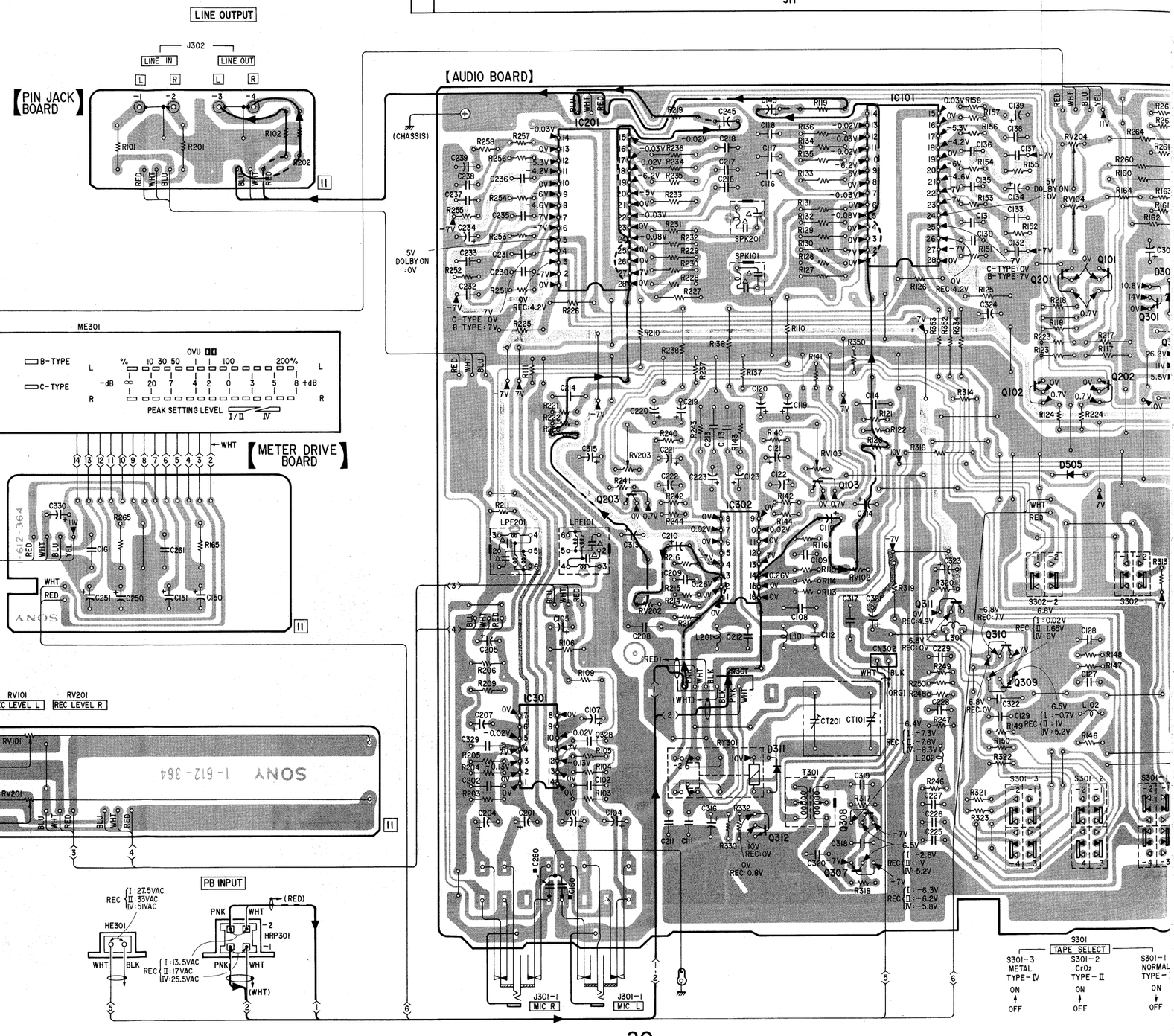

**SPI201-20**






## 4-1. MOUNTING DIAGRAM



11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

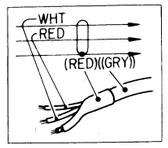
A B C D E F G H I J

IC Q

D

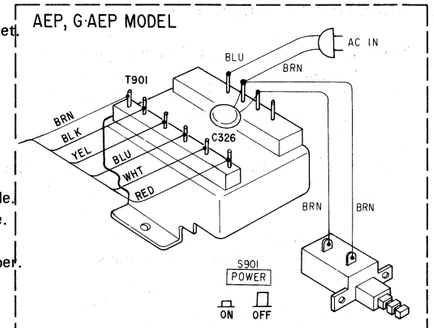
**Note:**

- Color code of sleeving over the end of the jacket.

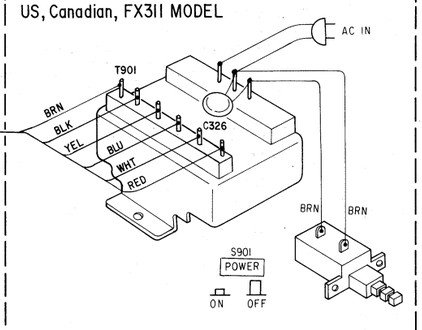



- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [ ]— : indicates side identified with part number.
- : B + pattern
- : B − pattern
- : signal path
- : L-CH signal path
- : R-CH signal path

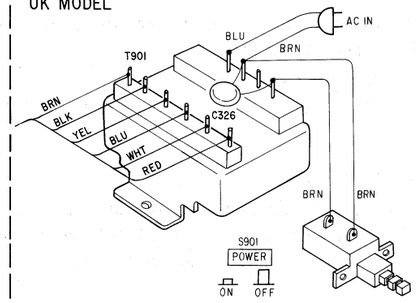
AEP, G·AEP MODEL



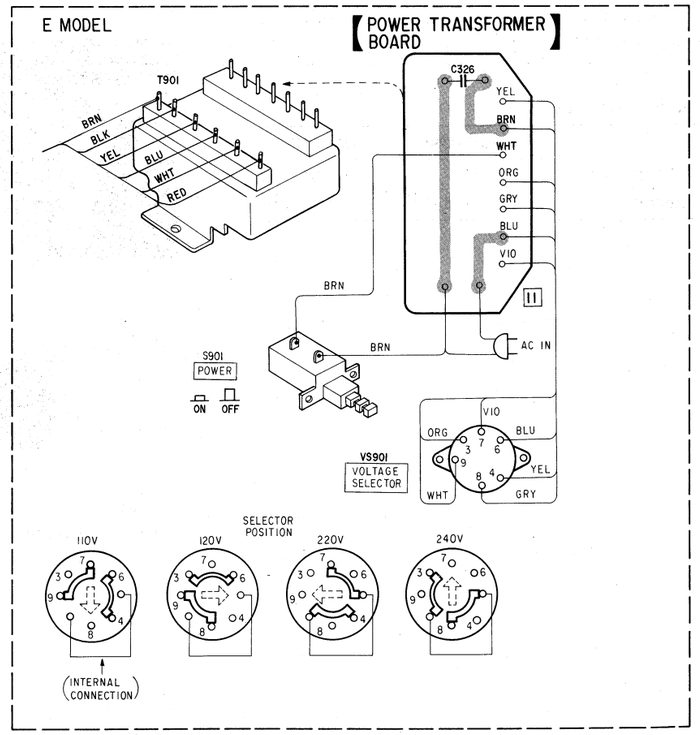

US, Canadian, FX311 MODEL




UK MODEL




E MODEL 【POWER TRANSFORMER BOARD】




【HEADPHONES BOARD】




【INTERRUPT BOARD】

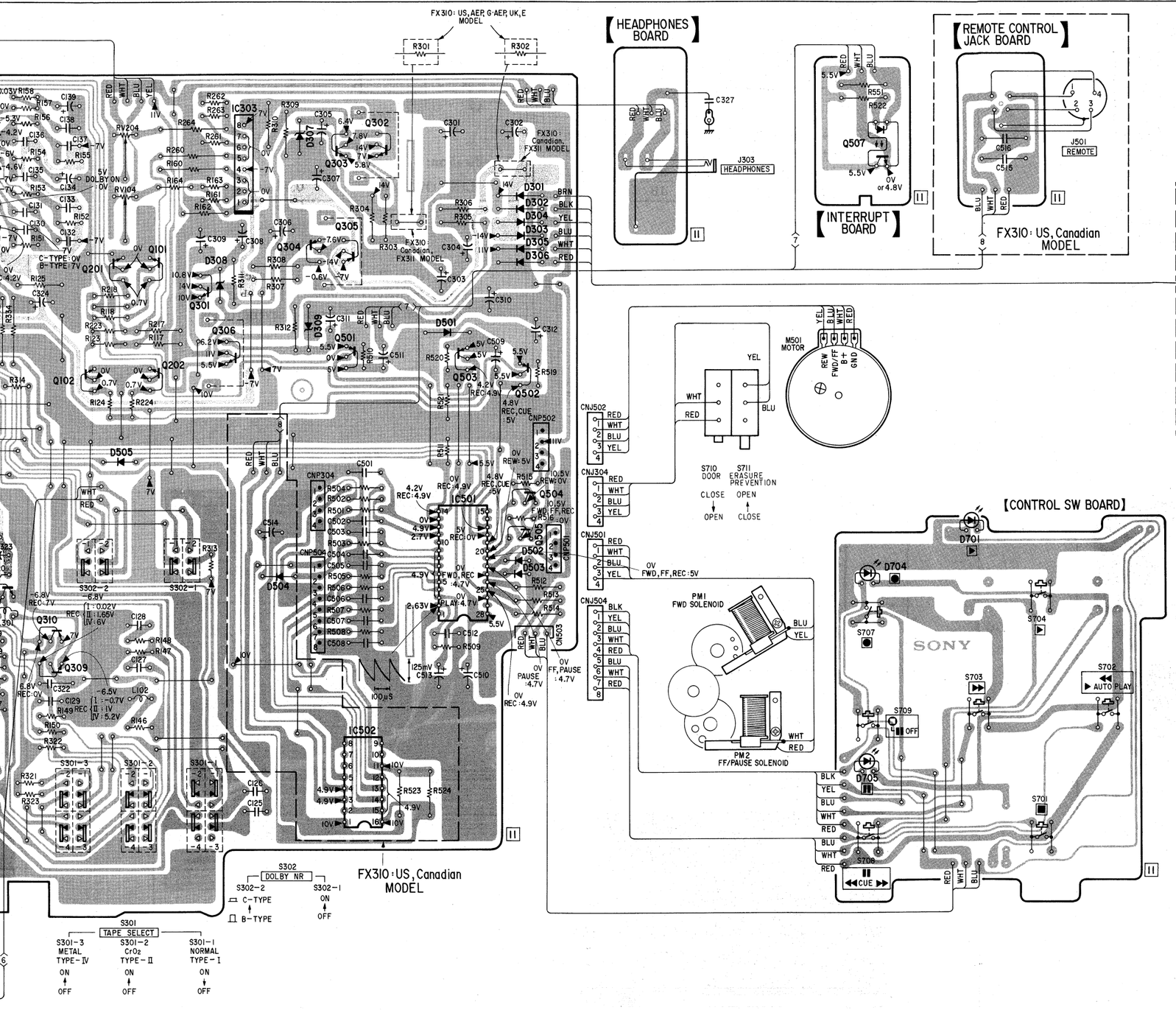



【REMOTE CONTROL JACK BOARD】

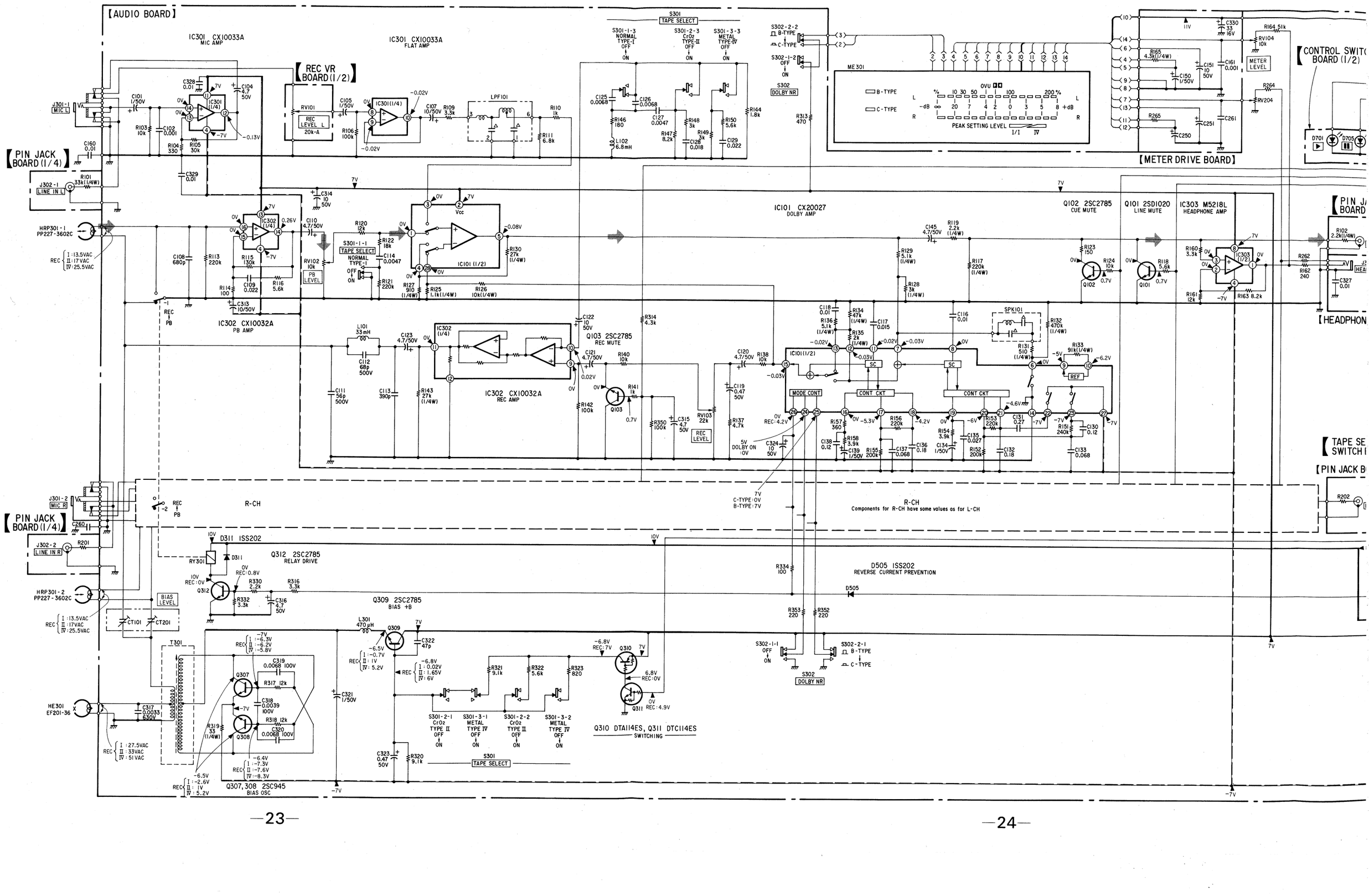



FX310: US, Canadian MODEL

FX310: US, AER, G·AER, UK, E MODEL

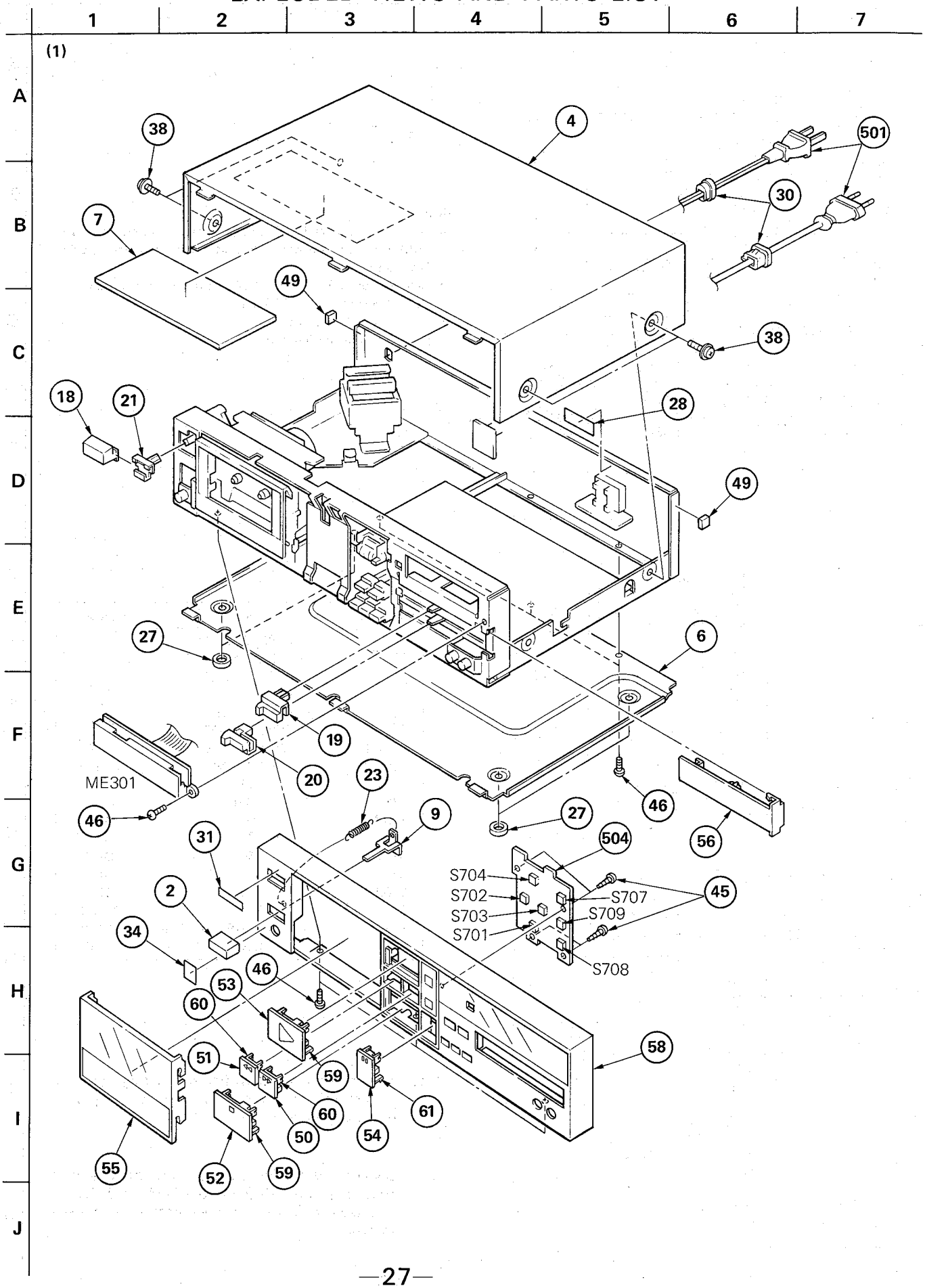


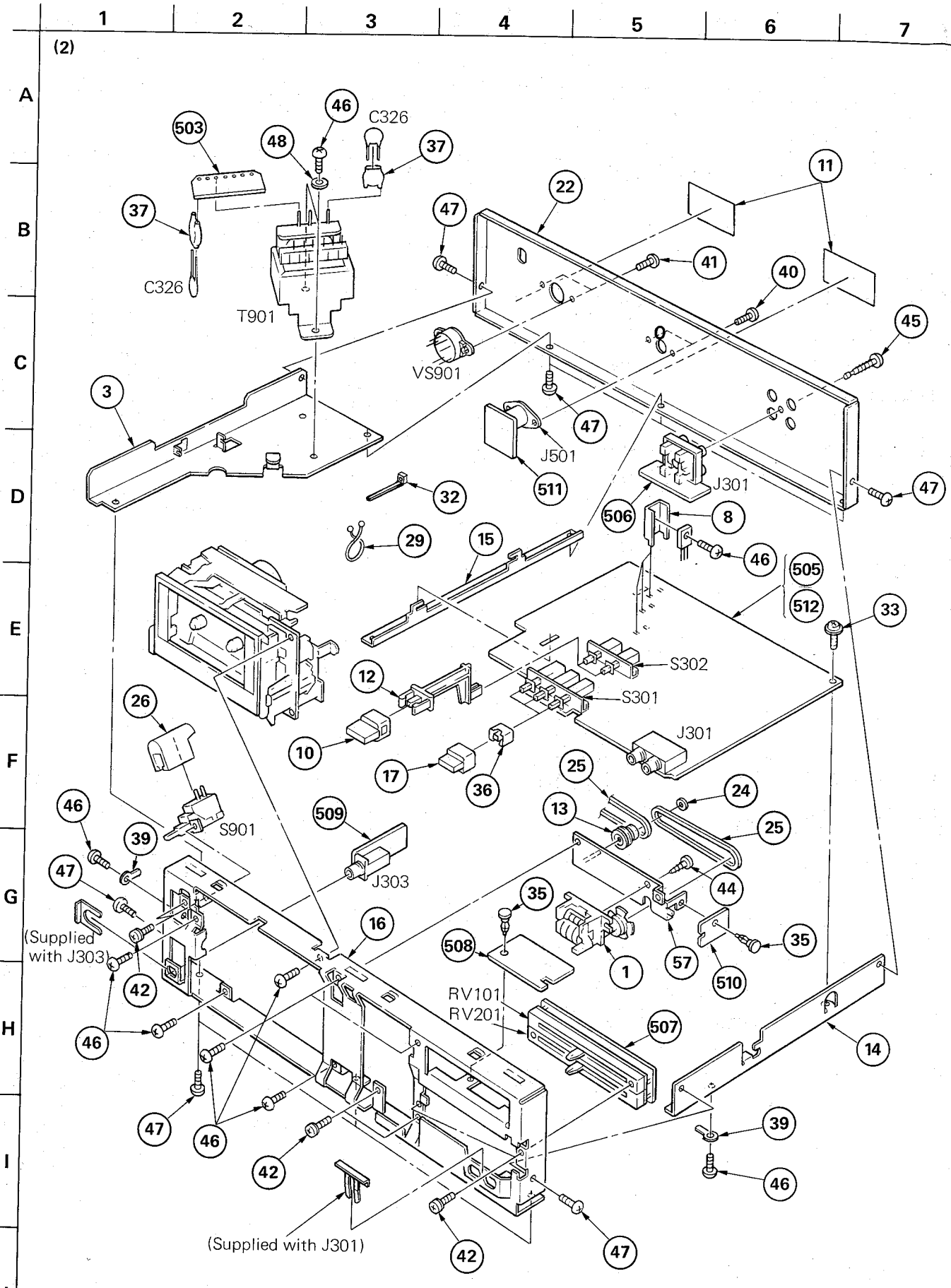
## 4-2. SCHEMATIC DIAGRAM



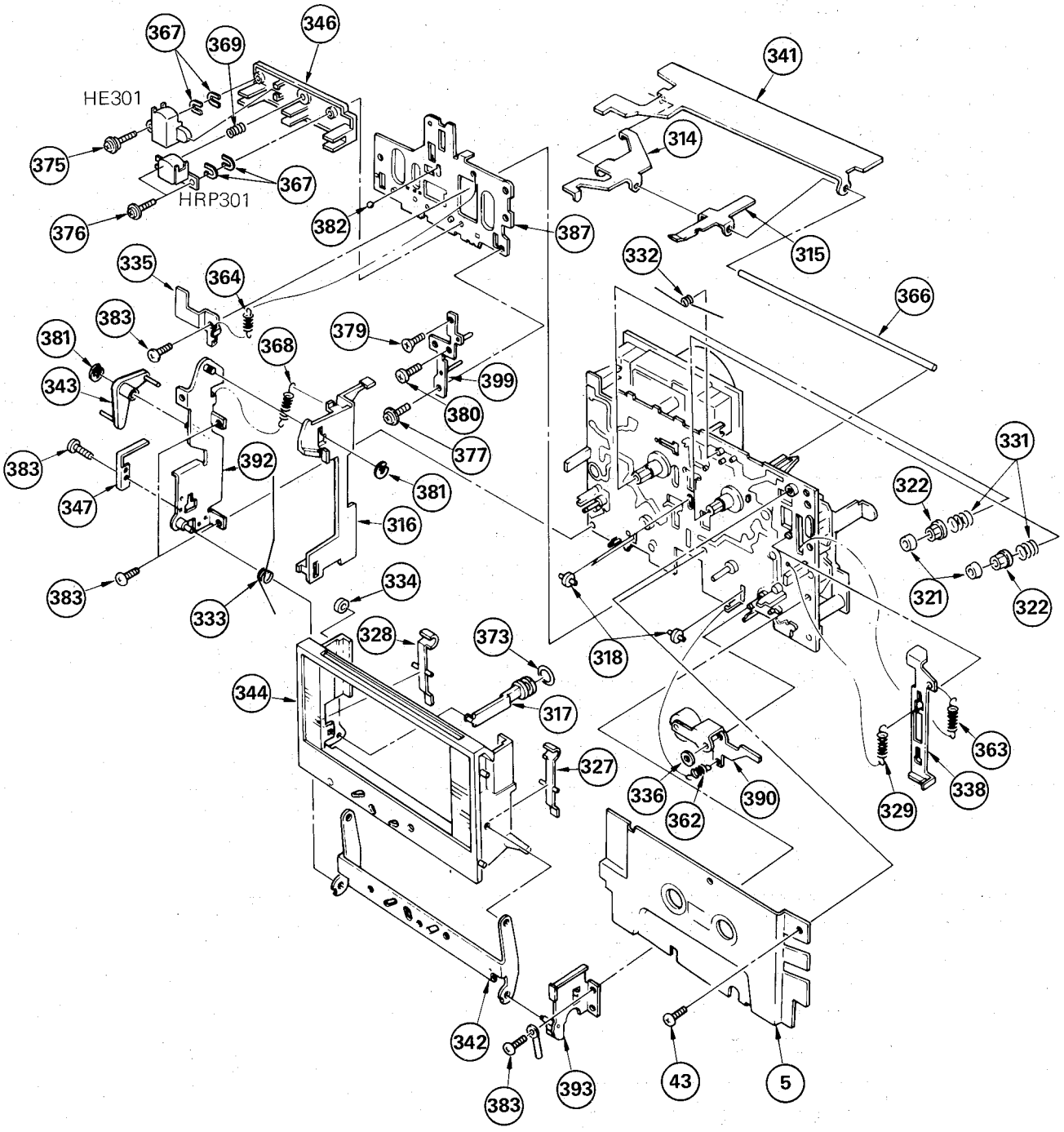
SECTION 5

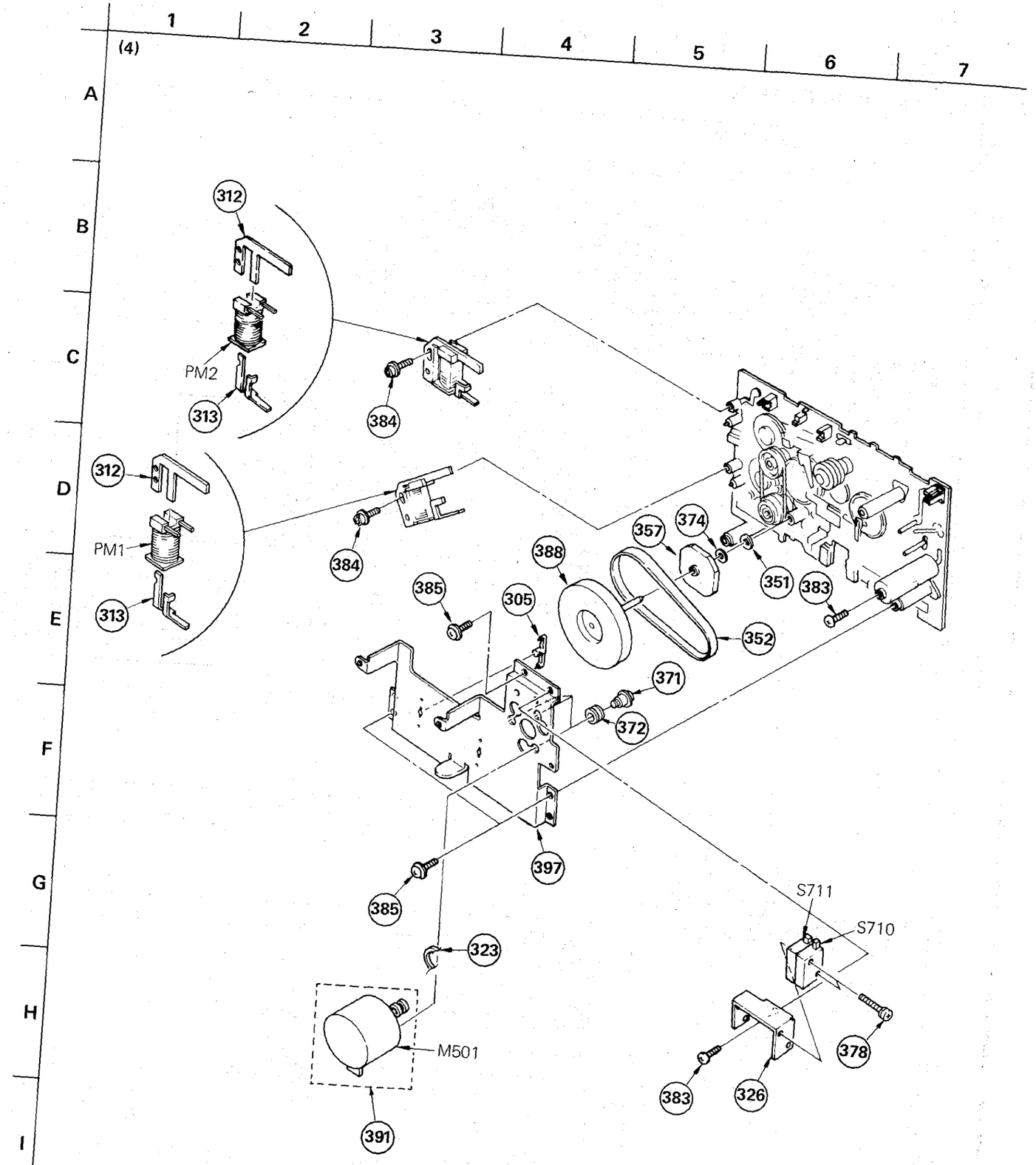
EXPLODED VIEWS AND PARTS LIST




(2)
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
46
C326
503
48
37
37
C326
T901
47
22
11
41
40
45
VS901
3
47
J501
511
J301
47
32
506
8
29
15
46
505
512
33
S302
12
S301
26
J301
10
17
36
25
24
13
25
46
39
S901
509
J303
47
35
44
(Supplied
with J303)
16
508
1
57
510
35
RV101
RV201
507
14
46
47
46
39
42
46
42
(Supplied with J301)
42
47

(3)




1
2
3
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5
6
7
A
B
C
D
E
F
G
H
I
J
(4)
312
PM2
313
384
312
PM1
313
384
388
357
374
351
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352
371
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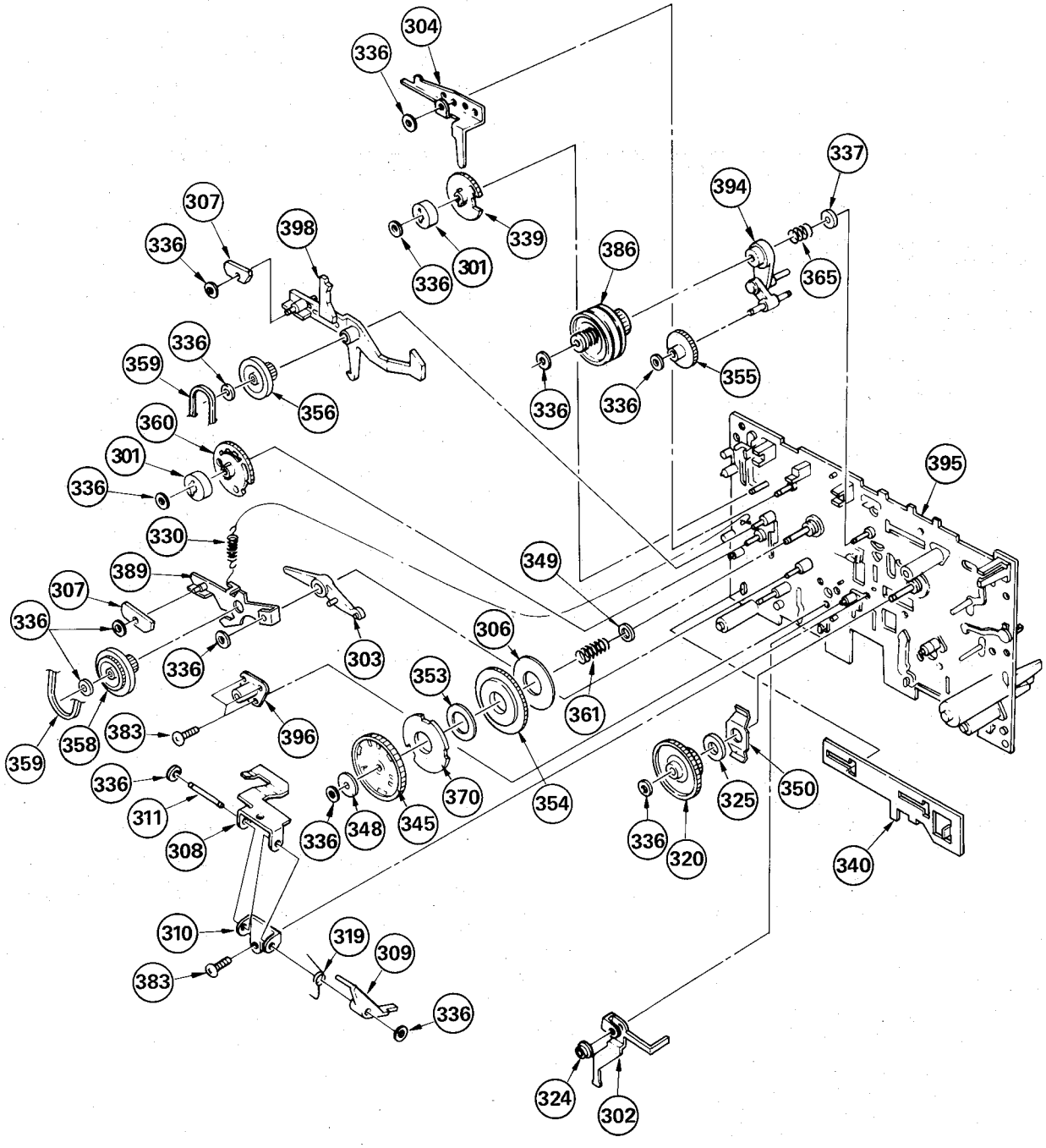
M501
391
S711
S710
378
383
326

(5)


304
336
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398
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361
358
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370
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325
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311
308
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348
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340
310
319
309
324
302

GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 1 | 1-548-574-31 | COUNTER, TAPE (NORMAL TYPE) |
| 2 | 3-304-419-31 | (BLACK)....BUTTON, EJECT |
| 2 | 3-304-419-41 | (SILVER)...BUTTON, EJECT |
| 3 ♦ | ;3-307-525- | PLATE, SIDE, LEFT |
| 4 | 3-307-532-11 | (BLACK)....COVER, TOP |
| 4 | 3-307-532-31 | (SILVER)...COVER, TOP |
| 5 | 3-307-533-00 | PLATE, ORNAMENTAL, MD |
| 6 ♦ | ;3-307-540-00 | PLATE, BOTTOM |
| 7 | 3-307-563-00 | SHEET, VIBRATION PROOF |
| 8 ♦ | ;3-312-615-31 | HEAT SINK |
| 9 ♦ | ;3-313-259-11 | PLATE, SLIDE |
| 10 | 3-315-105-11 | (SILVER)...KNOB (5X16), SQUARE |
| 10 | 3-315-105-21 | (BLACK)....KNOB (5X16), SQUARE |
| 11 ♦ | ;3-318-818-01 | (FX310:US,Canadian)...LABEL, MODEL NUMBER (U,CA) |
| 11 ♦ | ;3-318-819-01 | (FX310:AEP).....LABEL, MODEL NUMBER (AE1) |
| 11 ♦ | ;3-318-820-01 | (FX310:UK).....LABEL, MODEL NUMBER (UK) |
| 11 ♦ | ;3-318-821-01 | (FX310:E).....LABEL, MODEL NUMBER (E2/E3) |
| 11 ♦ | ;3-318-831-01 | (FX311).....LABEL, MODEL NUMBER (U,CA) |
| 11 ♦ | ;3-318-860-01 | (FX310:G-AEP)...LABEL, MODEL NUMBER (AE4) |
| 12 | 3-318-824-01 | ROD, KNOB |
| 13 | 3-318-825-01 | PULLEY, MIDWAY |
| 14 ♦ | ;3-318-827-01 | PLATE, SIDE, RIGHT |
| 15 ♦ | ;3-318-828-01 | PLATE, RELAY |
| 16 ♦ | ;3-318-830-01 | CHASSIS, AMPLIFIER |
| 17 | 3-318-909-01 | (SILVER)...KNOB, PUSH |
| 17 | 3-318-909-11 | (BLACK)....KNOB, PUSH |
| 18 | 3-318-911-01 | (SILVER)...KNOB (POWER.L), T MOLD |
| 18 | 3-318-911-11 | (BLACK)....KNOB (POWER.L), T MOLD |
| 19 | 3-318-913-01 | (SILVER)...KNOB (LEFT), REC CONTROL |
| 19 | 3-318-913-11 | (BLACK)....KNOB (LEFT), REC CONTROL |
| 20 | 3-318-914-01 | (SILVER)...KNOB (RIGHT), REC CONTROL |
| 20 | 3-318-914-11 | (BLACK)....KNOB (RIGHT), REC CONTROL |
| 21 | 3-318-915-01 | JOINT (P), KNOB |
| 22 ♦ | ;3-318-919-11 | (FX311).....PLATE, JACK |
| 22 ♦ | ;3-318-919-21 | (FX310:AEP,UK,G-AEP)...PLATE, JACK |
| 22 ♦ | ;3-318-919-31 | (FX310:E).....PLATE, JACK |
| 22 ♦ | ;3-318-919-41 | (FX310:US,Canadian)....PLATE, JACK |
| 23 | 3-540-244-00 | SPRING, TENSION |
| 24 | 3-558-708-21 | WASHER, STOPPER |
| 25 | 3-571-858-11 | BELT, SQUARE |
| 26 | 3-575-524-00 | COVER, POWER SWITCH |
| 27 | 3-576-731-00 | FELT (H) |
| 28 | 3-701-030-00 | LABEL, SERIAL NUMBER |

GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 29 | 3-701-417-00 | PURSE LOCK (11 DIA.) |
| 30 | 3-701-682-00 | (FX310:US,Canadian,E,FX311)..STOPPER, CORD |
| 30 | 3-703-244-02 | (FX310:AEP,UK,G-AEP)...BUSHING, CORD |
| 31 | 3-701-690-00 | (FX310:UK)...LABEL (MADE IN JAPAN) |
| 32 | 3-701-748-00 | CLAMP |
| 33 | 3-703-249-01 | SCREW, S TIGHT, +PTTWH 3X6 |
| 34 | 3-703-710-01 | STICKER, SONY SYMBOL (12) |
| 35 | 4-812-134-11 | RIVET, NYLON, 3.5 |
| 36 | 4-864-307-00 | RING |
| 37 | 4-875-455-01 | (FX310:AEP,UK,G-AEP,E)...COVER (DIA.20), CAPACTOR |
| 38 | 4-889-321-01 | (SILVER)...SCREW |
| 38 | 4-889-321-11 | (BLACK)....SCREW |
| 39 | 7-623-508-01 | LUG, 3 |
| 40 | 7-682-546-09 | (FX310:US)...SCREW +B 3X5 |
| 41 | 7-682-547-09 | (FX310:E)....SCREW +B 3X6 |
| 42 | 7-682-646-01 | SCREW +PS 3X5 |
| 43 | 7-685-104-19 | SCREW +P 2X6 TYPE2 NON-SLIT |
| 44 | 7-685-533-19 | SCREW +BTP 2.6X6 TYPE2 N-S |
| 45 | 7-685-546-19 | SCREW +BTP 3X8 TYPE2 N-S |
| 46 | 7-685-871-01 | SCREW +BVTT 3X6 (S) |
| 47 | 7-685-871-09 | SCREW +BVTT 3X6 (S) |
| 48 | 7-688-004-11 | W 4, MIDDLE |
| 49 | 9-911-840-XX | RUBBER (B) |
| 50 | 3-318-804-01 | (FX310:SILVER)...KNOB, FF |
| 50 | 3-318-804-11 | (FX310:BLACK)....KNOB, FF |
| 50 | 3-318-804-21 | (FX311).....KNOB, FF |
| 51 | 3-318-804-31 | (FX310:SILVER)...KNOB, REW |
| 51 | 3-318-804-41 | (FX310:BLACK)....KNOB, REW |
| 51 | 3-318-804-51 | (FX311).....KNOB, REW |
| 52 | 3-318-805-01 | (FX310:SILVER)...KNOB, STOP |
| 52 | 3-318-805-11 | (FX310:BLACK)....KNOB, STOP |
| 52 | 3-318-805-21 | (FX311).....KNOB, STOP |
| 53 | X-3318-820-1 | (FX310:SILVER)...KNOB, FWD |
| 53 | X-3318-820-2 | (FX310:BLACK)....KNOB, FWD |
| 53 | X-3318-820-3 | (FX311).....KNOB, FWD |
| 54 | X-3318-821-1 | (FX310:SILVER)...KNOB, PAUSE |
| 54 | X-3318-821-4 | (FX310:BLACK)....KNOB, PAUSE |
| 54 | X-3318-821-3 | (FX311).....KNOB, PAUSE |
| 55 | X-3318-801-1 | (FX310:SILVER)...WINDOW ASSY (S), CASSETTE |
| 55 | X-3318-802-1 | (FX310:BLACK)....WINDOW ASSY (B), CASSETTE |
| 55 | X-3318-806-1 | (FX311)....WINDOW ASSY, CASSETTE |
| 56 | X-3318-803-1 | (FX310:SILVER)...PLATE ASSY (S), ORNAMENTAL |
| 56 | X-3318-804-1 | (FX310:BLACK)....PLATE ASSY (B), ORNAMENTAL |
| 56 | X-3318-807-1 | (FX311)....PLATE ASSY, ORNAMENTAL |
| 57 | X-3318-805-1 | BRACKET ASSY, COUNTER |

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- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 58 | X-3318-810-1 | (FX310:SILVER)...PANEL ASSY (S), FRONT |
| 58 | X-3318-811-1 | (FX310:BLACK)....PANEL ASSY (B), FRONT |
| 58 | X-3318-812-1 | (FX311)....PANEL ASSY, FRONT |
| 59 | 3-318-814-01 | MOLD, KNOB, FWD |
| 60 | 3-318-815-01 | MOLD, KNOB, FF/REW |
| 61 | 3-318-816-01 | MOLD, KNOB, PAUSE |

ACCESSORY & PACKING MATERIAL

| No. | Part No. | Description |
|---|---|---|
| 101 | 1-551-734-11 | CORD, CONNECTION (RK-74A) |
| 102 | 3-312-976-00 | (FX311)....SHEET, PROTECTION, PANEL |
| 103 | 3-315-149-00 | CUSHION (LEFT), LOWER |
| 104 | 3-315-150-00 | CUSHION (RIGHT), LOWER |
| 105 | 3-315-151-00 | CUSHION (LEFT), UPPER |
| 106 | 3-315-152-00 | CUSHION (RIGHT), UPPER |
| 107 | 3-318-854-00 | (FX310:UK,E)...INDIVIDUAL CARTON |
| 107 | 3-318-858-00 | (FX310:US,Canadian,AEP,G-AEP) ...INDIVIDUAL CARTON |
| 107 | 3-318-859-00 | (FX311).....INDIVIDUAL CARTON |
| 108 | 3-573-625-00 | SHEET, POLYETHYLENE |
| 109 | 3-701-328-00 | (FX310:US,Canadian,AEP,G-AEP) ...LABEL, PRODUCT COLOR |
| 110 | 3-701-630-00 | BAG, POLYETHYLENE |
| 111 | 3-773-854-11 | (FX310:Canadian,AEP,UK,E)...MANUAL, INSTRUCTION |
| 111 | 3-773-854-21 | (FX310:US,FX311)....MANUAL, INSTRUCTION |
| 111 | 3-773-854-41 | (FX310:AEP,G-AEP)...MANUAL, INSTRUCTION |
| 112 | 3-793-828-11 | QUESTIONNAIRE |
| 113 | 4-876-352-00 | SHEET, PROTECTION |
| 114 | X-3701-105-0 | ROD ASSY, CLEANING, HEAD |

MECHANISM SECTION

| No. | Part No. | Description |
|---|---|---|
| 301 | 1-452-202-00 | MAGNET |
| 302 ♦ | 3-307-301-00 | LEVER (RELAY), FWD SELECT |
| 303 | 3-307-307-00 | LEVER, FWD |
| 304 ♦ | 3-307-308-00 | LEVER, FF |
| 305 | 3-307-309-00 | RETAINER (A), THRUST |
| 306 | 3-307-313-00 | PLATE, YOKE |
| 307 | 3-307-315-01 | ARBOR, MOVABLE |
| 308 | 3-307-319-00 | RETAINER, TAKE-UP GEAR |
| 309 | 3-307-328-00 | LEVER, TAKE-UP SELECTION |
| 310 ♦ | 3-307-329-00 | PLATE, FULCRUM,SELECTION LEVER |
| 311 | 3-307-330-00 | PIN, FULCRUM PLATE |
| 312 | 3-307-332-00 | ARBOR, FIXED |
| 313 | 3-307-333-00 | ARBOR, TRIGGER |
| 314 ♦ | 3-307-337-00 | LEVER, REC DETECTION |
| 315 ♦ | 3-307-344-00 | LEVER, HALF RETAINER |
| 316 | 3-307-345-00 | SLIDER, EJECT |
| 317 | 3-307-347-00 | PISTON |
| 318 | 3-307-348-00 | ROLLER |
| 319 | 3-307-355-00 | SPRING |
| 320 | 3-307-360-00 | GEAR (S), REEL |
| 321 | 3-307-362-00 | CAP, REEL |
| 322 | 3-307-363-00 | CLAW (N), REEL |
| 323 | 3-307-366-00 | BELT, FAST FORWARD |
| 324 | 3-307-367-00 | BUSHING, SELECT LEVER |
| 325 | 3-307-369-00 | FELT, LIMITER |
| 326 ♦ | 3-307-370-00 | BRACKET, SWITCH |
| 327 | 3-307-371-00 | SPRING (LEFT) |
| 328 | 3-307-372-00 | SPRING (RIGHT) |
| 329 | 3-307-374-00 | SPRING, TENSION |
| 330 | 3-307-378-00 | SPRING, TENSION |
| 331 | 3-307-380-00 | SPRING, COMPRESSION |
| 332 | 3-307-382-00 | SPRING |
| 333 | 3-307-383-00 | SPRING |
| 334 | 3-307-390-00 | BUSHING, LOADING SPRING |
| 335 | 3-307-391-00 | SPRING |
| 336 | 3-307-394-00 | RETAINER (B), THRUST |
| 337 | 3-307-395-00 | RETAINER, SPRING |
| 338 | 3-307-397-00 | SLIDER, PAUSE |
| 339 | 3-307-401-00 | GEAR, FF CAM |
| 340 ♦ | 3-307-403-00 | SLIDER, FWD |
| 341 ♦ | 3-307-404-00 | RETAINER, DETECTION SWITCH |
| 342 | 3-307-405-00 | PLATE, FULCRUM, CASSETTE HOLDER |
| 343 | 3-307-406-00 | LEVER, EJECT |
| 344 | 3-307-407-31 | HOLDER, CASSETTE |
| 345 | 3-307-412-00 | GEAR, TAKE-UP REEL |

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CAPACITORS:

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COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

| Ref No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| C237 | 1-136-163-00 | FILM | 0.068MF | 5% | 50V |
| C238 | 1-136-166-00 | FILM | 0.12MF | 5% | 50V |
| C239 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C245 | 1-123-369-00 | ELECT | 4.7MF | 20% | 50V |
| C250 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C251 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C260 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C261 | 1-162-110-00 | CERAMIC | 0.001MF | 10% | 50V |
| C301 | 1-123-336-00 | ELECT | 470MF | 20% | 25V |
| C302 | 1-123-336-00 | ELECT | 470MF | 20% | 25V |
| C303 | 1-123-320-00 | ELECT | 100MF | 20% | 16V |
| C304 | 1-123-320-00 | ELECT | 100MF | 20% | 16V |
| C305 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C306 | 1-123-310-00 | ELECT | 470MF | 20% | 10V |
| C307 | 1-123-310-00 | ELECT | 470MF | 20% | 10V |
| C308 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C309 | 1-123-306-00 | ELECT | 47MF | 20% | 10V |
| C310 | 1-123-323-00 | ELECT | 470MF | 20% | 16V |
| C311 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C312 | 1-123-308-00 | ELECT | 220MF | 20% | 10V |
| C313 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C314 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C315 | 1-123-369-00 | ELECT | 4.7MF | 20% | 50V |
| C316 | 1-123-369-00 | ELECT | 4.7MF | 20% | 50V |
| C317 | 1-129-708-00 | FILM | 0.0033MF | 10% | 630V |
| C318 | 1-130-287-00 | FILM | 0.0039MF | 5% | 100V |
| C319 | 1-130-293-00 | FILM | 0.0068MF | 5% | 100V |
| C320 | 1-130-293-00 | FILM | 0.0068MF | 5% | 100V |
| C321 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C322 | 1-162-029-00 | CERAMIC | 47PF | 5% | 50V |
| C323 | 1-123-379-00 | ELECT | 0.47MF | 20% | 50V |
| C324 | 1-123-356-00 | ELECT | 10MF | 20% | 50V |
| C326⚠ | 1-161-744-00 | CAP, CERAMIC | 0.01MF | FZ | |
| C327 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C328 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C329 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C330 | 1-123-318-00 | ELECT | 33MF | 20% | 16V |
| C501 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C502 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C503 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C504 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C505 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C506 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C507 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |
| C508 | 1-162-113-00 | CERAMIC | 0.01MF | 30% | 16V |

ELECTRICAL PARTS

| Ref No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| C509 | 1-123-308-00 | ELECT | 220MF | 20% | 10V |
| C510 | 1-123-306-00 | ELECT | 47MF | 20% | 10V |
| C511 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C512 | 1-108-571-00 | MYLAR | 0.0047MF | 5% | 50V |
| C513 | 1-123-380-00 | ELECT | 1MF | 20% | 50V |
| C515 | 1-161-326-00 | (FX310:US,Canadian)...CERAMIC | 0.022MF | 30% | 50V |
| C516 | 1-161-326-00 | (FX310:US,Canadian)...CERAMIC | 0.0022MF | 30% | 50V |
| ♦CNP301 | 1-560-064-00 | PIN, CONNECTOR 6P | | | |
| ♦CNP302 | 1-560-060-00 | PIN, CONNECTOR 2P | | | |
| ♦CNP304 | 1-560-062-00 | PIN, CONNECTOR 4P | | | |
| ♦CNP501 | 1-560-062-00 | PIN, CONNECTOR 4P | | | |
| ♦CNP502 | 1-560-062-00 | PIN, CONNECTOR 4P | | | |
| ♦CNP503 | 1-560-061-00 | PIN, CONNECTOR 3P | | | |
| ♦CNP504 | 1-560-065-00 | PIN, CONNECTOR 8P | | | |
| CT101 | 1-141-225-00 | CAP, TUNING, TRIMAR | | | |
| CT201 | 1-141-225-00 | CAP, TUNING, TRIMAR | | | |
| D301 | 8-719-200-02 | DIODE 10E2 | | | |
| D302 | 8-719-200-02 | DIODE 10E2 | | | |
| D303 | 8-719-200-02 | DIODE 10E2 | | | |
| D304 | 8-719-200-02 | DIODE 10E2 | | | |
| D305 | 8-719-200-02 | DIODE 10E2 | | | |
| D306 | 8-719-200-02 | DIODE 10E2 | | | |
| D307 | 8-719-910-64 | DIODE HZ6B1L | | | |
| D308 | 8-719-910-15 | DIODE HZ11B2L | | | |
| D309 | 8-719-102-72 | DIODE RD5.6EN3 | | | |
| D311 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D501 | 8-719-200-02 | DIODE 10E2 | | | |
| D502 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D503 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D504 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D505 | 8-719-107-94 | DIODE 1SS202-1 | | | |
| D701 | 8-719-907-81 | DIODE BG5535S (FWD) | | | |
| D704 | 8-719-907-84 | DIODE PR5535S (REC) | | | |
| D705 | 8-719-907-80 | DIODE AA5535S (PAUSE) | | | |
| HE301 | 8-825-724-00 | HEAD, ERASE EF201-36 | | | |
| HRP301 | 8-825-507-50 | HEAD, REC/PB (PP227-3602C) | | | |
| IC101 | 8-752-002-70 | IC CX20027 | | | |
| IC201 | 8-752-002-80 | IC CX20028 | | | |
| IC301 | 8-759-101-56 | IC CX10033A | | | |
| IC302 | 8-759-101-55 | IC CX10032A | | | |
| IC303 | 8-759-600-02 | IC M5218L | | | |
| IC501 | 8-759-202-05 | IC TC9310N-040 | | | |
| IC502 | 8-759-700-46 | (FX310:US,Canadian)...IC CX10034 | | | |

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

| Ref No. | Part No. | Description |
|---|---|---|
| J301 | 1-507-797-21 | JACK, LARGE TYPE (MIC) |
| J302 | 1-507-908-11 | JACK, PIN 4P (LINE IN/LINE OUT) |
| J303 | 1-507-796-21 | JACK (HEADPHONES) |
| J501 ♦ | 1-562-544-11 | (FX310:US,Canadian)...SOCKET, CONNECTOR (REMOTE) |
| L101 | 1-408-930-00 | MICRO INDUCTOR 33MMH |
| L102 | 1-408-922-00 | MICRO INDUCTOR 6.8MMH |
| L201 | 1-408-930-00 | MICRO INDUCTOR 33MMH |
| L202 | 1-408-922-00 | MICRO INDUCTOR 6.8MMH |
| L301 | 1-407-177-XX | MICRO INDUCTOR 470UH |
| LPF101 | 1-231-388-00 | FILTER, LOW PASS |
| LPF201 | 1-231-388-00 | FILTER, LOW PASS |
| M501 | 1-541-201-00 | MOTOR |
| ME301 | 1-520-466-11 | (FX310)....METER, LEVEL |
| ME301 | 1-520-473-11 | (FX311)....METER, LEVEL |
| PM1 | 1-454-316-00 | SOLENOID, PLUNGER (FF, PAUSE) |
| PM2 | 1-454-316-00 | SOLENOID, PLUNGER (FWD) |
| Q101 | 8-729-100-13 | TRANSISTOR 2SC2001 |
| Q102 | 8-729-245-83 | TRANSISTOR 2SC2458 |
| Q103 | 8-729-245-83 | TRANSISTOR 2SC2458 |
| Q201 | 8-729-100-13 | TRANSISTOR 2SC2001 |
| Q202 | 8-729-245-83 | TRANSISTOR 2SC2458 |
| Q203 | 8-729-245-83 | TRANSISTOR 2SC2458 |
| Q301 | 8-729-100-13 | TRANSISTOR 2SC2001 |
| Q302 | 8-729-180-93 | TRANSISTOR 2SD809 |
| Q303 | 8-729-245-83 | TRANSISTOR 2SC2458 |
| Q304 | 8-729-117-54 | TRANSISTOR 2SA1175 |
| Q305 | 8-729-173-13 | TRANSISTOR 2SB731 |
| Q306 | 8-729-141-43 | TRANSISTOR 2SD414 |
| Q307 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q308 | 8-729-663-47 | TRANSISTOR 2SC1364 |
| Q309 | 8-729-178-54 | TRANSISTOR 2SC2785 |
| Q310 | 8-729-900-61 | TRANSISTOR DTA114ES |
| Q311 | 8-729-900-80 | TRANSISTOR DTC114ES |
| Q312 | 8-729-178-54 | TRANSISTOR 2SC2785 |
| Q501 | 8-729-117-54 | TRANSISTOR 2SA1175 |
| Q502 | 8-729-117-54 | TRANSISTOR 2SA1175 |
| Q503 | 8-729-117-54 | TRANSISTOR 2SA1175 |
| Q504 | 8-729-900-80 | TRANSISTOR DTC114ES |
| Q505 | 8-729-900-80 | TRANSISTOR DTC114ES |
| Q507 | 8-719-902-90 | PHOTO INTERRUPTOR SPI201-20 |
| R101 | 1-247-167-00 | CARBON 33K 5% 1/4W |
| R102 | 1-247-139-00 | CARBON 2.2K 5% 1/4W |
| R103 | 1-247-855-00 | CARBON 10K 5% 1/6W |

ELECTRICAL PARTS

| Ref No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| R104 | 1-247-819-00 | CARBON | 330 | 5% | 1/6W |
| R105 | 1-247-866-00 | CARBON | 30K | 5% | 1/6W |
| R106 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R109 | 1-247-843-00 | CARBON | 3.3K | 5% | 1/6W |
| R110 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R111 | 1-247-851-00 | CARBON | 6.8K | 5% | 1/6W |
| R113 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |
| R114 | 1-247-807-00 | CARBON | 100 | 5% | 1/6W |
| R115 | 1-247-882-00 | CARBON | 130K | 5% | 1/6W |
| R116 | 1-247-849-00 | CARBON | 5.6K | 5% | 1/6W |
| R117 | 1-246-529-00 | CARBON | 220K | 5% | 1/4W |
| R118 | 1-247-849-00 | CARBON | 5.6K | 5% | 1/6W |
| R119 | 1-247-139-00 | CARBON | 2.2K | 5% | 1/4W |
| R120 | 1-247-857-00 | CARBON | 12K | 5% | 1/6W |
| R121 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |
| R122 | 1-247-861-00 | CARBON | 18K | 5% | 1/6W |
| R123 | 1-247-811-00 | CARBON | 150 | 5% | 1/6W |
| R124 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R125 | 1-246-474-00 | CARBON | 1.1K | 5% | 1/4W |
| R126 | 1-247-155-00 | CARBON | 10K | 5% | 1/4W |
| R127 | 1-246-472-00 | CARBON | 910 | 5% | 1/4W |
| R128 | 1-246-484-00 | CARBON | 3K | 5% | 1/4W |
| R129 | 1-246-490-00 | CARBON | 5.1K | 5% | 1/4W |
| R130 | 1-247-165-00 | CARBON | 27K | 5% | 1/4W |
| R131 | 1-246-466-00 | CARBON | 510 | 5% | 1/4W |
| R132 | 1-246-537-00 | CARBON | 470K | 5% | 1/4W |
| R133 | 1-214-776-00 | METAL | 91K | 1% | 1/4W |
| R134 | 1-247-171-00 | CARBON | 47K | 5% | 1/4W |
| R135 | 1-246-480-00 | CARBON | 2K | 5% | 1/4W |
| R136 | 1-246-490-00 | CARBON | 5.1K | 5% | 1/4W |
| R137 | 1-247-847-00 | CARBON | 4.7K | 5% | 1/6W |
| R138 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R140 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R141 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R142 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R143 | 1-247-165-00 | CARBON | 27K | 5% | 1/4W |
| R144 | 1-247-837-00 | CARBON | 1.8K | 5% | 1/6W |
| R146 | 1-247-813-00 | CARBON | 180 | 5% | 1/6W |
| R147 | 1-247-853-00 | CARBON | 8.2K | 5% | 1/6W |
| R148 | 1-247-842-00 | CARBON | 3K | 5% | 1/6W |
| R149 | 1-247-842-00 | CARBON | 3K | 5% | 1/6W |
| R150 | 1-247-849-00 | CARBON | 5.6K | 5% | 1/6W |
| R151 | 1-247-888-00 | CARBON | 240K | 5% | 1/6W |
| R152 | 1-247-886-00 | CARBON | 200K | 5% | 1/6W |
| R153 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |

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- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

ELECTRICAL PARTS

| Ref No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| R154 | 1-247-845-00 | CARBON | 3.9K | 5% | 1/6W |
| R155 | 1-247-886-00 | CARBON | 200K | 5% | 1/6W |
| R156 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |
| R157 | 1-247-820-00 | CARBON | 360 | 5% | 1/6W |
| R158 | 1-247-845-00 | CARBON | 3.9K | 5% | 1/6W |
| R160 | 1-247-843-00 | CARBON | 3.3K | 5% | 1/6W |
| R161 | 1-247-857-00 | CARBON | 12K | 5% | 1/6W |
| R162 | 1-247-816-00 | CARBON | 240 | 5% | 1/6W |
| R163 | 1-247-853-00 | CARBON | 8.2K | 5% | 1/6W |
| R164 | 1-247-872-00 | CARBON | 51K | 5% | 1/6W |
| R165 | 1-247-145-00 | CARBON | 4.3K | 5% | 1/4W |
| R201 | 1-247-167-00 | CARBON | 33K | 5% | 1/4W |
| R202 | 1-247-139-00 | CARBON | 2.2K | 5% | 1/4W |
| R203 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R204 | 1-247-819-00 | CARBON | 330 | 5% | 1/6W |
| R205 | 1-247-866-00 | CARBON | 30K | 5% | 1/6W |
| R206 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R209 | 1-247-843-00 | CARBON | 3.3K | 5% | 1/6W |
| R210 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R211 | 1-247-851-00 | CARBON | 6.8K | 5% | 1/6W |
| R213 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |
| R214 | 1-247-807-00 | CARBON | 100 | 5% | 1/6W |
| R215 | 1-247-882-00 | CARBON | 130K | 5% | 1/6W |
| R216 | 1-247-849-00 | CARBON | 5.6K | 5% | 1/6W |
| R217 | 1-246-529-00 | CARBON | 220K | 5% | 1/4W |
| R218 | 1-247-849-00 | CARBON | 5.6K | 5% | 1/6W |
| R219 | 1-247-139-00 | CARBON | 2.2K | 5% | 1/4W |
| R220 | 1-247-857-00 | CARBON | 12K | 5% | 1/6W |
| R221 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |
| R222 | 1-247-861-00 | CARBON | 18K | 5% | 1/6W |
| R223 | 1-247-811-00 | CARBON | 150 | 5% | 1/6W |
| R224 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R225 | 1-246-474-00 | CARBON | 1.1K | 5% | 1/4W |
| R226 | 1-247-155-00 | CARBON | 10K | 5% | 1/4W |
| R227 | 1-246-472-00 | CARBON | 910 | 5% | 1/4W |
| R228 | 1-246-484-00 | CARBON | 3K | 5% | 1/4W |
| R229 | 1-246-490-00 | CARBON | 5.1K | 5% | 1/4W |
| R230 | 1-247-165-00 | CARBON | 27K | 5% | 1/4W |
| R231 | 1-246-466-00 | CARBON | 510 | 5% | 1/4W |
| R232 | 1-246-537-00 | CARBON | 470K | 5% | 1/4W |
| R233 | 1-214-776-00 | METAL | 91K | 1% | 1/4W |
| R234 | 1-247-171-00 | CARBON | 47K | 5% | 1/4W |
| R235 | 1-246-480-00 | CARBON | 2K | 5% | 1/4W |
| R236 | 1-246-490-00 | CARBON | 5.1K | 5% | 1/4W |
| R237 | 1-247-847-00 | CARBON | 4.7K | 5% | 1/6W |

ELECTRICAL PARTS

| Ref No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| R238 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R240 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R241 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R242 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R243 | 1-247-165-00 | CARBON | 27K | 5% | 1/4W |
| R244 | 1-247-837-00 | CARBON | 1.8K | 5% | 1/6W |
| R246 | 1-247-813-00 | CARBON | 180 | 5% | 1/6W |
| R247 | 1-247-853-00 | CARBON | 8.2K | 5% | 1/6W |
| R248 | 1-247-842-00 | CARBON | 3K | 5% | 1/6W |
| R249 | 1-247-842-00 | CARBON | 3K | 5% | 1/6W |
| R250 | 1-247-849-00 | CARBON | 5.6K | 5% | 1/6W |
| R251 | 1-247-888-00 | CARBON | 240K | 5% | 1/6W |
| R252 | 1-247-886-00 | CARBON | 200K | 5% | 1/6W |
| R253 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |
| R254 | 1-247-845-00 | CARBON | 3.9K | 5% | 1/6W |
| R255 | 1-247-886-00 | CARBON | 200K | 5% | 1/6W |
| R256 | 1-247-887-00 | CARBON | 220K | 5% | 1/6W |
| R257 | 1-247-820-00 | CARBON | 360 | 5% | 1/6W |
| R258 | 1-247-845-00 | CARBON | 3.9K | 5% | 1/6W |
| R260 | 1-247-843-00 | CARBON | 3.3K | 5% | 1/6W |
| R261 | 1-247-857-00 | CARBON | 12K | 5% | 1/6W |
| R262 | 1-247-816-00 | CARBON | 240 | 5% | 1/6W |
| R263 | 1-247-853-00 | CARBON | 8.2K | 5% | 1/6W |
| R264 | 1-247-872-00 | CARBON | 51K | 5% | 1/6W |
| R265 | 1-247-145-00 | CARBON | 4.3K | 5% | 1/4W |
| R301 | 1-202-850-00 | (FX310:AEP,UK,G-AEP,E)...RES SOLID | | 2.2 Y% | 1/4W |
| R302 | 1-202-850-00 | (FX310:AEP,UK,G-AEP,E)...RES SOLID | | 2.2 Y% | 1/4W |
| R303 | 1-247-131-00 | CARBON | 1K | 5% | 1/4W |
| R304 | 1-247-131-00 | CARBON | 1K | 5% | 1/4W |
| R305 | 1-247-131-00 | CARBON | 1K | 5% | 1/4W |
| R306 | 1-247-131-00 | CARBON | 1K | 5% | 1/4W |
| R307 | 1-246-492-00 | CARBON | 6.2K | 5% | 1/4W |
| R308 | 1-246-494-00 | CARBON | 7.5K | 5% | 1/4W |
| R309 | 1-246-495-00 | CARBON | 8.2K | 5% | 1/4W |
| R310 | 1-246-472-00 | CARBON | 910 | 5% | 1/4W |
| R311 | 1-247-139-00 | CARBON | 2.2K | 5% | 1/4W |
| R312 | 1-247-139-00 | CARBON | 2.2K | 5% | 1/4W |
| R313 | 1-247-823-00 | CARBON | 470 | 5% | 1/6W |
| R314 | 1-247-846-00 | CARBON | 4.3K | 5% | 1/6W |
| R316 | 1-247-843-00 | CARBON | 3.3K | 5% | 1/6W |
| R317 | 1-247-857-00 | CARBON | 12K | 5% | 1/6W |
| R318 | 1-247-857-00 | CARBON | 12K | 5% | 1/6W |
| R319 | 1-246-437-00 | CARBON | 33 | 5% | 1/4W |
| R320 | 1-247-854-00 | CARBON | 9.1K | 5% | 1/6W |
| R321 | 1-247-854-00 | CARBON | 9.1K | 5% | 1/6W |

NOTE:

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CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

| Ref No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| R322 | 1-247-849-00 | CARBON | 5.6K | 5% | 1/6W |
| R323 | 1-247-829-00 | CARBON | 820 | 5% | 1/6W |
| R330 | 1-247-839-00 | CARBON | 2.2K | 5% | 1/6W |
| R332 | 1-247-843-00 | CARBON | 3.3K | 5% | 1/6W |
| R334 | 1-247-807-00 | CARBON | 100 | 5% | 1/6W |
| R350 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R352 | 1-247-815-00 | CARBON | 220 | 5% | 1/6W |
| R353 | 1-247-815-00 | CARBON | 220 | 5% | 1/6W |
| R501 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R502 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R503 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R504 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R505 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R506 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R507 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R508 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R509 | 1-247-872-00 | CARBON | 51K | 5% | 1/6W |
| R510 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R511 | 1-247-863-00 | CARBON | 22K | 5% | 1/6W |
| R512 | 1-247-115-00 | CARBON | 220 | 5% | 1/4W |
| R513 | 1-247-121-00 | CARBON | 390 | 5% | 1/4W |
| R514 | 1-247-111-00 | CARBON | 150 | 5% | 1/4W |
| R515 | 1-247-839-00 | CARBON | 2.2K | 5% | 1/6W |
| R516 | 1-247-839-00 | CARBON | 2.2K | 5% | 1/6W |
| R519 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R520 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R521 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R522 | 1-247-119-00 | CARBON | 330 | 5% | 1/4W |
| R523 | 1-247-147-00 | CARBON | 4.7K | 5% | 1/4W |
| R524 | 1-247-155-00 | (FX310:US,Canadian)..CARBON 10K 5% 1/4W | | | |
| R551 | 1-247-155-00 | (FX310:US,Canadian)..CARBON 10K 5% 1/4W | | | |
| RV101 | 1-226-991-00 | RES, VAR, SLIDE 20K/20K (REC LEVEL-L) | | | |
| RV102 | 1-226-236-00 | RES, ADJ, CARBON 10K | | | |
| RV103 | 1-226-852-00 | RES, ADJ, CARBON 22K | | | |
| RV104 | 1-226-236-00 | RES, ADJ, CARBON 10K | | | |
| RV201 | 1-226-991-00 | RES, VAR, SLIDE 20K/20K (REC LEVEL-R) | | | |
| RV202 | 1-226-236-00 | RES, ADJ, CARBON 10K | | | |
| RV203 | 1-226-852-00 | RES, ADJ, CARBON 22K | | | |
| RV204 | 1-226-236-00 | RES, ADJ, CARBON 10K | | | |
| RY201 | 1-515-473-00 | RELAY | | | |
| RY301 | 1-515-473-00 | RELAY | | | |

ELECTRICAL PARTS

| Ref No. | Part No. | Description |
|---|---|---|
| S301 | 1-554-822-00 | SWITCH, PUSH (3 KEY)(TAPE SELECT) |
| S302 | 1-554-821-00 | SWITCH, PUSH (2 KEY)(DOLBY NR) |
| S701 | 1-554-303-00 | SWITCH, KEY BOARD (STOP) |
| S702 | 1-554-303-00 | SWITCH, KEY BOARD (REW) |
| S703 | 1-554-303-00 | SWITCH, KEY BOARD (FF) |
| S704 | 1-554-303-00 | SWITCH, KEY BOARD (FWD) |
| S707 | 1-554-303-00 | SWITCH, KEY BOARD (REC) |
| S708 | 1-554-303-00 | SWITCH, KEY BOARD (PAUSE) |
| S709 | 1-554-303-00 | SWITCH, KEY BOARD (REC MUTE) |
| S710 | 1-554-422-00 | SWITCH, PUSH (1 KEY)(DOOR) |
| S711 | 1-554-422-00 | SWITCH, PUSH (1 KEY)(ERASURE PREVENTION) |
| S901⚠ | 1-553-318-00 | SWITCH, PUSH (AC POWER)(1 KEY) |
| SPK101 | 1-235-186-00 | ENCAPSULATED COMPONENT |
| SPK201 | 1-235-186-00 | ENCAPSULATED COMPONENT |
| T301 | 1-433-267-00 | TRANSFORMER, OSCILLATOR |
| T901⚠ | 1-447-356-00 | (FX310:US,Canadian,FX311)... TRANSFORMER, POWER |
| T901⚠ | 1-447-357-00 | (FX310:E).....TRANSFORMER, POWER |
| T901⚠ | 1-447-358-00 | (FX310:AEP,UK,G-AEP)..TRANSFORMER, POWER |
| ⚠VS901 | 1-526-676-51 | (FX310:E)..SELECTOR, POWER VOLTAGE |

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- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.